

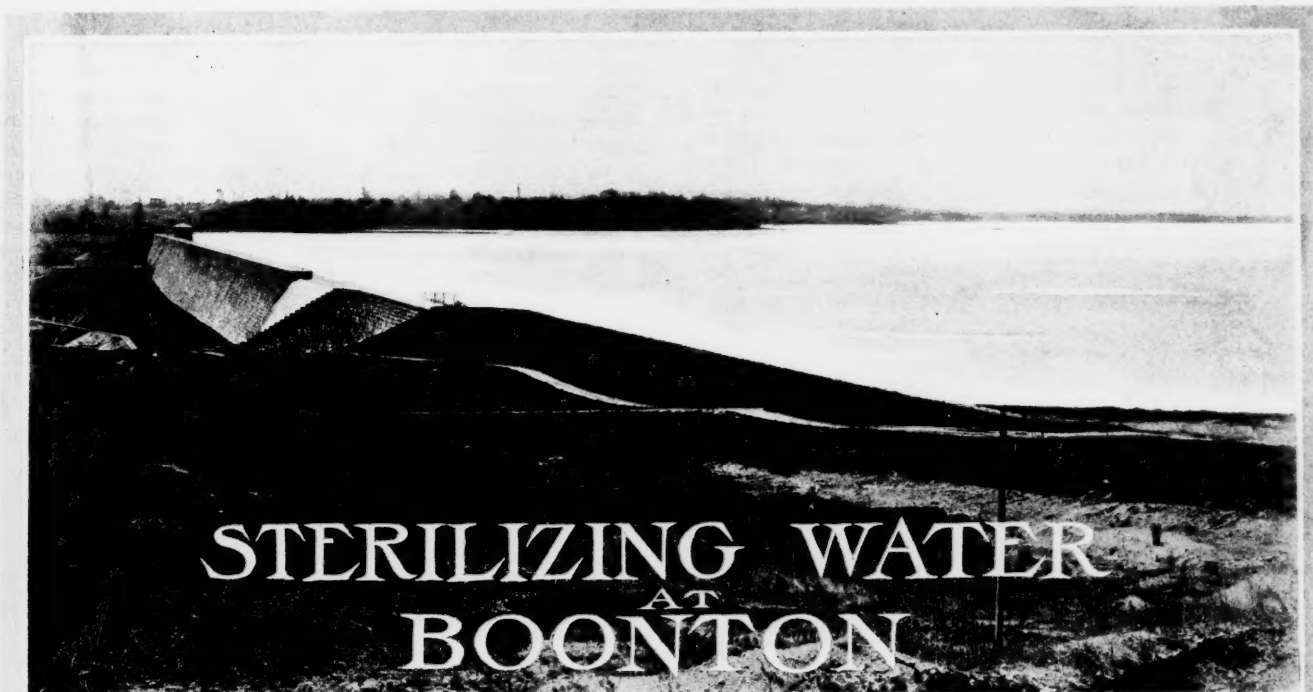
# Municipal Journal

## And Engineer

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No. 1.



BOONTON DAM, JERSEY CITY WATER WORKS

Lower Gate House and Sterilizing Plant at Further End of Dam

INDICATIONS of various kinds are given, both by the theoretical papers printed during the past year or so and by discoveries and developments in connection with actual installations, that future developments in water purification will be along the line of a division of the purification into several classes and the selection of separate agents or methods for effecting each of these. These several sub-divisions of water purification are based upon the various conditions which it is proposed to remedy. These sub-divisions include the removal of suspended matter, of colloidal matter and of matter in true solution, the first being further divided into the removal of bacteria and that of all other suspended matters. In addition to these, undesirable qualities as to color, hardness, etc., require special methods of treatment. In the majority of cases a fine sand filter, either slow or rapid, will produce excellent results. But as a carpenter would not find it economical to use the same saw for all the stages of work involved in turning a log into a piece of fine cabinet work, so the use of a single purifying agent for effecting the removal of all the objectionable features above referred to is both uneconomical and does not secure the best possible results. Until recently such a statement could be made from a theoretical standpoint only, since the various apparatus and methods for meeting the several requirements had not been brought to a practical point.

A sand filter can frequently be operated to remove all the suspended matter which is desired, excepting the bacteria, at a rate very much higher than that required for a high grade of bacterial efficiency. In other words, if bacteria are not con-

sidered it may be possible to employ double the rate of filtration and thus save one-half the cost of the filters. There are two objections to such rapid filtration; the fact that sufficient bacterial efficiency is not obtained, and that in many cases the filters will clog too rapidly with the coarser suspended matters. These objections can be met, the former by a preliminary treatment for the removal of such suspended matters, as by sedimentation, preliminary filters, etc.; the latter by a destruction of the bacteria by some method other than filtration. (The actual amount of suspended matter contributed by the bodies of dead bacteria is insignificant.) Preliminary filters (or "pre-filters") are now becoming more or less common; and the destruction of bacteria in filtered effluents is rapidly advancing from the theoretic to the practical stage. Such destruction is commonly known as the sterilization of water, although strictly speaking only an approximation to sterilization can be obtained. The problem of sterilizing sewage effluents involves chiefly the matters of efficiency and of cost. In the sterilizing of potable water, however, an added difficulty is encountered in that the sterilizing agent must be such as will neither impart to the water anything injurious to the human system, nor make it objectionable for use in boilers or for manufacturing purposes. The ideal method of effecting this would apparently be the oxidation of the bacteria, by which they, being organic matter, would be destroyed. To a certain extent this can be effected by aeration; but the amount of oxygen required will not ordinarily be absorbed by water and artificial supplies of oxygen must be provided. The most effective forms of oxygen

for this work are ozone and nascent oxygen, the latter being sometimes called atomic oxygen. Ozone has been successfully used in a number of European plants for this purpose, and in this country several experimental plants have been operated at Niagara Falls, Philadelphia, and a few other points; while a municipal plant is now in operation at Lindsay, Ont., installed by the United Water Improvement Company, which company is also constructing a plant for the Baltimore County Water Company. The creation of ozone and its introduction into the water is ordinarily effected through the aid of electricity. The difficulty of obtaining a uniform production of it in a reliable manner and the cost have so far delayed the more general adoption of ozone treatment, but these difficulties appear to be in the way of early solution.

The idea of using heat for this purpose has generally been dismissed as involving too great an expense, although a method has recently been proposed whereby the amount required is very considerably reduced by the simple expedient of causing the water already sterilized to give over a large part of its heat to that entering the apparatus, the fuel consumption therefore being only that necessary to make up for the heat which is not so transferred by the sterilized water. As far as we know this method has been employed only as a laboratory experiment.

Another method of sterilizing water is by the use of chemicals. Lime, acids and copper, chlorine and other compounds have been experimented with for sewage effluents and to a certain extent for water supplies. During the last year, however, both English and American engineers have been considering the use of hypochlorite of lime or sodium, either in its form as a commercial product or that produced by electrolytic methods. Dr. Rideal advocated the use of this agent for such purposes in a paper before the Royal Sanitary Institute on January 13, and has used it experimentally in the Guilford, England, water supply. Also in 1897 hypochlorite was used temporarily at Maidstone, England, during a typhoid epidemic. In our issue of March 24 last was a description of its use at Poughkeepsie, N. Y.

Actual use of this agent has been carried on since September of last year by the Jersey City Water Supply Company, and it is believed that this is the first practical use of this method of sterilizing water supplies as a permanent system on a large scale, although it had been employed for several years for sterilizing sewage effluents. The process, plant and results were discussed in papers before the American Water Works Association at their last convention by Mr. Geo. W. Fuller, of the firm of Hering & Fuller, and by Mr. Geo. A. Johnson, of that firm. From these papers we have prepared the following abstract:

The Jersey City Water Supply Company supplies Jersey City with water which is impounded by the Boonton dam in a reservoir having a capacity of eight thousand five hundred million gallons. During the greater part of the year this water is safe and of a desirable character in all respects. After heavy rain storms upon the water shed, however, the bacterial content is found to be undesirably high, and it was to reduce this that sterilization was employed.

The agent used, commonly spoken of as hypochlorite of lime, is in reality a mixed salt of calcium containing about equivalent proportions of chloride of calcium and hypochlorite of calcium. This compound is acted upon by the moisture in the atmosphere and hence is transported for the trade in tight metal drums to preserve its initial strength as far as practicable. Ordinarily this compound contains some 35 per cent of available chlorine and some 40 to 44 per cent of lime. The remainder is partly water and partly impurities contributed by the slaked lime used in preparing this salt.

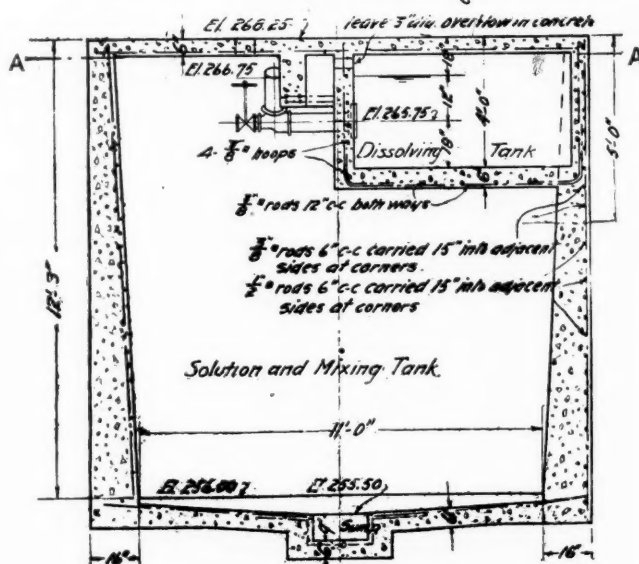
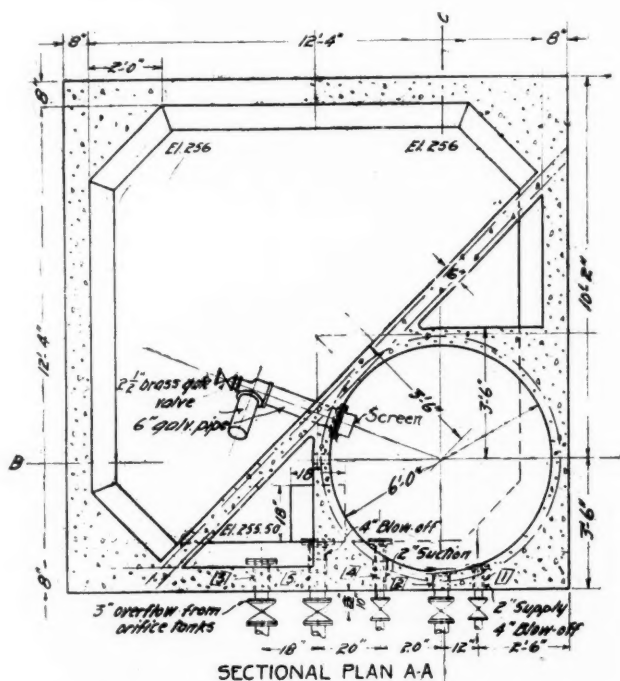
When this material is dissolved in water it takes two forms, calcium chloride and calcium hypochlorite, the former of which is inert and of no effect, the second serving as the sterilizing agent. In ordinary natural water the free carbonic acid or half-bound carbonic acid in the water combines with the hypochlorite and there is formed calcium carbonate and free oxychloride, the latter known technically as hypochlorous acid. The oxychloride is a powerful oxidizing agent, because owing

to its instability it readily liberates nascent oxygen, which is a far more active substance than the inert oxygen of the atmosphere. The action is in no sense a chlorine treatment, since no free chlorine is released.

The sterilizing plant was designed to permit the commercial product known as High Grade Bleaching Powder or hypochlorite of lime to be dissolved in a convenient manner in tanks located adjoining the lower gate house, whence the solution is pumped with suitable devices and added to the water to be treated at the mouths of several 48-inch pipe lines which convey the water from the reservoir to the head of the aqueduct.

#### DESCRIPTION OF THE PLANT

The plant consists of a storeroom 20 x 33 feet, a main operating room 30 x 33 feet, an engine room 8 x 16 feet and a boiler room 10 x 33 feet. Here are located three solution tanks, each with a capacity of 1,400 cubic feet and each containing a dissolving tank six feet in diameter and three feet deep. Depth recorders keep a continuous record of the level of the liquid in each of the solution tanks. Two belt-driven 2-inch turbine pumps deliver the chemical solution from the solution tanks to orifice tanks. These pumps and the stirring devices were temporarily driven by two small boilers and engines, which

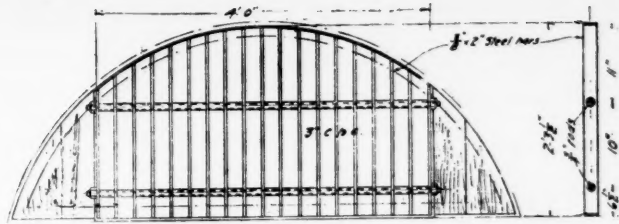


SECTION B-B.

PLAN AND SECTION OF DISSOLVING AND MIXING TANKS

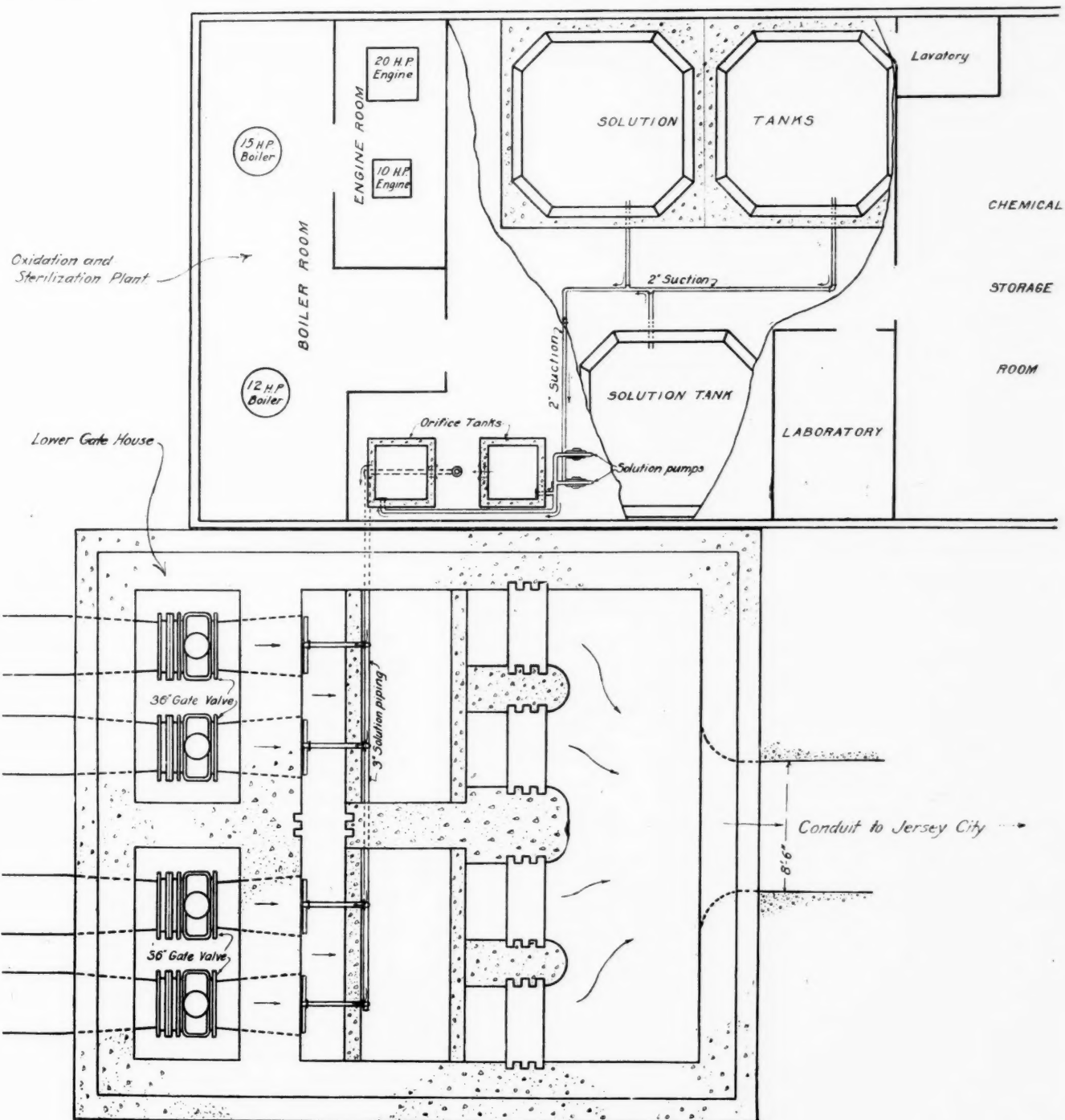
later were replaced by water wheels driven by the pressure of the water as it passed from the plant on the way to Jersey City. The orifice tanks into which the pumps discharge the chemical solution are two in number, each containing an adjustable orifice, over which a constant head is maintained through the expedient of an overflow pipe and the continuous pumping of somewhat more solution than is required for use. A small laboratory is provided, in which are made the tests required for regulating the strength and amount of chemical solution applied. The store room will hold 90,000 pounds of bleaching powder, sufficient to provide for over a year's continuous treatment of 40,000,000 gallons daily.

The dissolving tanks are of reinforced concrete and their tops constitute a portion of the floor of the main operating room of the building. In the floor over each tank is a grating made of  $2 \times \frac{3}{8}$ -inch steel bars, spaced 3-inch centers, through which the dry chemical is dumped. Water enters each tank through a 2-inch supply pipe and the solution leaves through a 6-inch overflow pipe with its opening 18 inches above the bot-



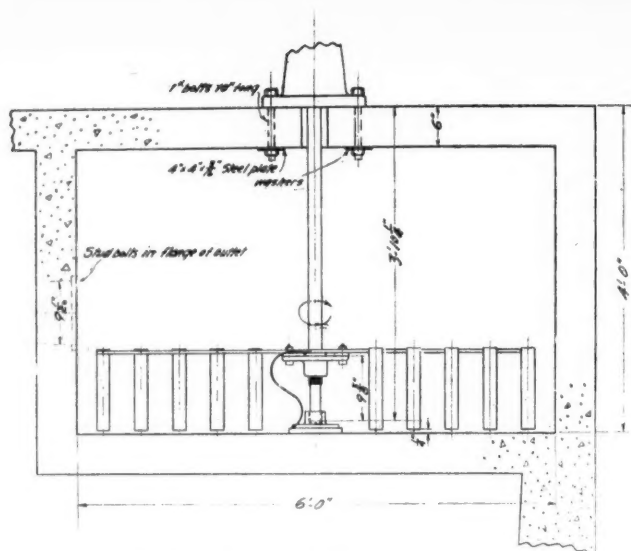
GRATING FOR SOLUTION TANKS

tom. A 4-inch blow-off pipe is provided at the bottom for removing sludge or accumulated solids. The solution tanks, which are 11 feet 3 inches deep and 11 feet wide at the bottom and 12 feet 4 inches at the top, receive the solution from the dissolving tanks, and the roofs of these also form part of the floor of the main room. In each of these also is a 4-inch blow-off pipe at the lowest point, the blow-off pipes discharging into Rockaway River below the plant. The solution is pumped from these through a 2-inch suction pipe, the opening of which

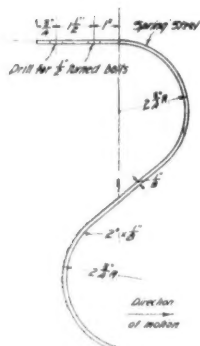


GENERAL PLAN OF PLANT AND GATE HOUSE





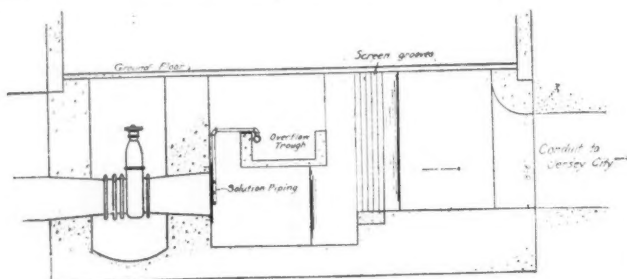
SECTION THROUGH DISSOLVING TANK



STEEL TOOTH

is just above the bottom. Belt-driven rakes with suitable teeth revolve in the dissolving tanks, and revolving paddles in the solution tanks facilitate the more complete dissolving of the chemical after it has left the dissolving tanks. The pumping is done by turbine pumps, each having a capacity of 25 gallons per minute and constructed of special bronze. At present the power for driving rakes, paddles and pumps is obtained by a 30-h.p. horizontal turbine inserted in the pipe line.

The orifice tanks are each 3 feet 6 inches square and 2 feet 6 inches deep. The excess solution flows back to the solution tank through a 3-inch overflow pipe. The adjustable orifice with which each tank is provided is made of a special composition of copper, lead and tin and is so arranged that, with the aid of a fine micrometer screw, the area of the orifice may be changed at will. The head being constant, and the orifices having been tested, an index on the micrometer screw enables the adjusting of the quantity of discharge with great accuracy. Should the head for any reason fall below the level of the overflow, a copper float causes an alarm gong to ring so that the matter may receive instant attention. From the orifice tanks the prescribed volume of solution of known strength flows by gravity through a 3-inch galvanized iron pipe into the screen chamber beneath the floor of the lower gate house. This main pipe branches into four lines, each  $1\frac{1}{2}$  inches in diameter, and each line extends to a grid fastened over the mouth of each of the four 48-inch mains leading from the reservoir. Each grid is made up of one vertical and three horizontal 1-inch pipes, drilled with twelve  $\frac{1}{4}$ -inch openings pointing downward, through which openings the solution is discharged. This and the water are well mixed before entering the concrete aqueduct. This plant was put into operation on September 26, and from that time to about December 31 it was under the direct charge of Mr. Geo. A. Johnson, who

SUBSTRUCTURE OF LOWER GATE HOUSE  
Showing grid for applying solution

described the method of operation and results obtained in a paper before the association.

#### OPERATION OF THE PLANT

Bleaching powder was received at the plant in sheet iron drums holding about 750 pounds net. It was quite pure and contained about 35 per cent available chlorine equivalent to 7.9 per cent available oxygen (as explained above, free chlorine is not liberated in this process of sterilizing and the available oxygen seems a more logical unit of measure than the chlorine). In making up a new solution the amount of old solution remaining in the tank was first ascertained and it was then decided to what height the tank was to be filled, from which could be readily calculated the amount of bleaching powder necessary to make a solution of a given strength. This amount of dry powder was then dumped into the dissolving tank, raw water turned on and the agitators started. The solution from this tank overflowed into the solution tank. The solution was then tested for its strength in units of available oxygen and the orifice adjusted accordingly. Very little trouble was experienced from clogging at the orifice and the variation in the rate of application of the chemical was practically negligible.

Experiments were made as to the amount of chemical required. At first 1.4 parts of available chlorine per million was used, this corresponding to 0.3 parts of potential oxygen. Gradually, however, this was reduced to about 0.2 parts per million of available chlorine, or 0.045 of potential oxygen, there having been no striking evidence that the higher quantities were more efficacious in destroying bacterial life than the smaller quantity last mentioned. The amount of carbonaceous organic matter in the raw water seemed to bear no relation to the amount of sterilizing agent necessary, nor did the temperature of the water. The amount of organic matter in the Boonton water and that of the sterilizing agent used were both so small, however, as to render this point very uncertain.

During November, 1908, the amount of oxidizing agent in the terms of potential oxygen which was applied to the water ranged from 0.133 to 0.167, averaging 0.154. The number of bacteria per c.c. in raw water varied from 30 to 700, averaging 204; and those at a point a short distance below the sterilizing plant varied from 2 to 13, averaging 6.6. Analyses were made almost every day of the water as delivered at Jersey City, by two physicians, and these found the number of bacteria to average, the one 9.6, the other 14.5. At no point were there any positive results from tests for coli communis in one c.c., and only once did one of the physicians obtain a positive test in 5 c.c. The amount of water treated per day varied from 39,000,000 to 41,000,000 gallons.

In December the amount of water treated varied from 38,000,000 to 43,000,000 gallons. The potential oxygen varied from 0.167 to 0.074, averaging 0.131. The number of bacteria in the raw water varied from 240 to 1,600, averaging 571. Those in the water below the sterilizing plant varied from nothing to 30, averaging 2.9, while those found in the city by the physicians before mentioned averaged 18.3 in one case and 6.4 in the other. Tests for coli communis gave negative results on all occasions. Tests for coli communis in the raw water gave positive results on 19 occasions in November and five occasions in December. These figures indicate a bacterial efficiency of 96.8 per cent in November and 99.5 per cent in December.

Some experiments were conducted to compare with these results the efficiency and cost of electrolytically prepared hypochlorite of sodium. A solution of common salt of about 4.5 per cent strength and having an initial temperature of 65 deg. Fahr. was run through a cell of porcelain-lined pottery clay containing carbon electrodes and glass and carbon baffles, the water passing at the rate of about 2 cubic feet per hour in the presence of a direct current of 110 volts and 22 amperes. The yield of a single cell was about 0.6 pound of available chlorine per hour. A number of tests showed that equal quantities of germicide from bleaching powder and from sodium hypochlorite electrically prepared possessed equal efficiency in destroying bacteria.



The cost per 1,000,000 gallons of treating water at this plant by bleaching powder was as follows:

One extra operator.....	6½c.
Bleaching powder.....	6½c.
Coal for heating plant, miscellaneous laboratory and other supplies.....	1c.
Total .....	14c.

No cost for power is included, as this was obtained from a water wheel driven by the supply itself.

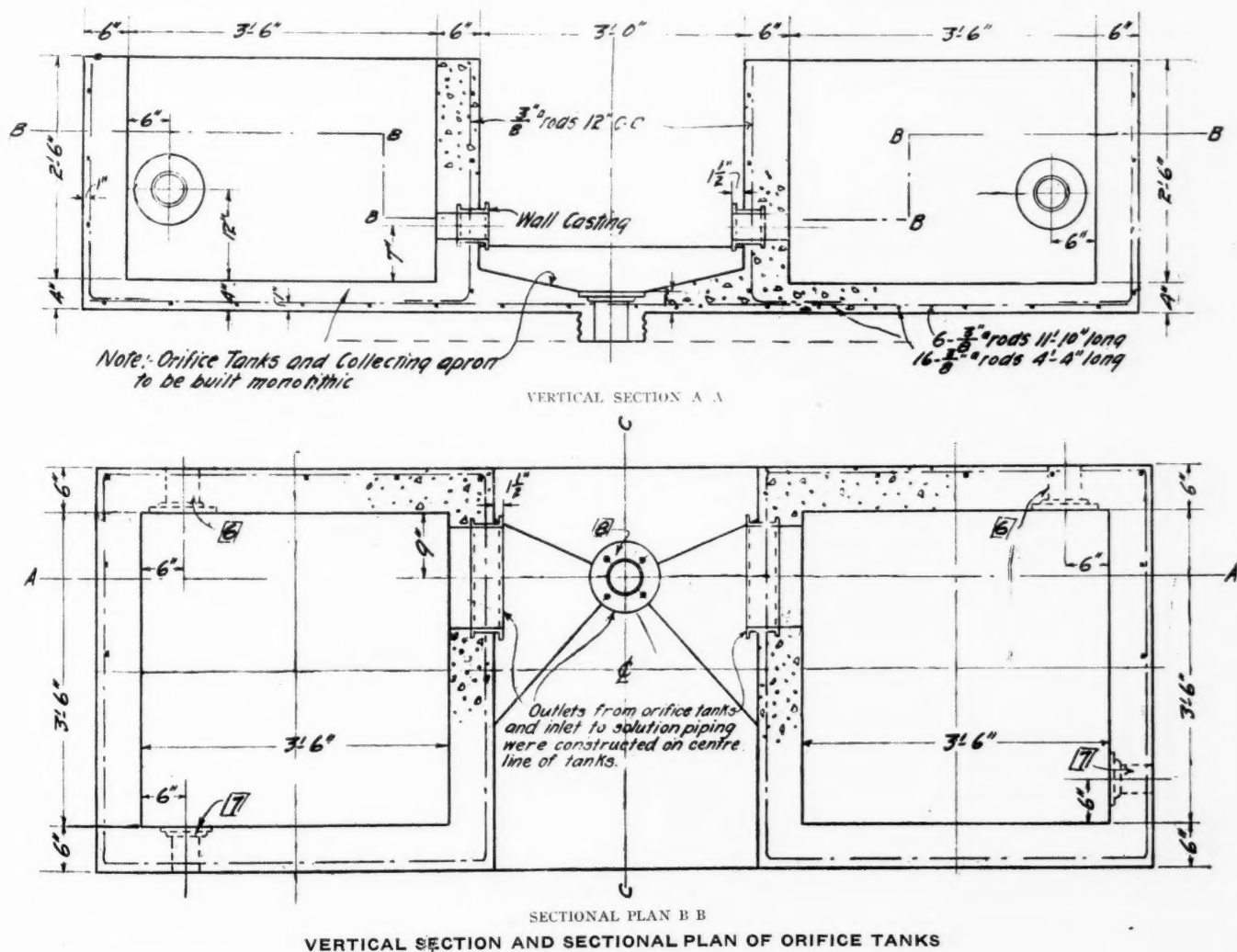
The cost of the treatment with electrically prepared sodium hypochlorite (with salt at one-third cent per pound) was about  $4\frac{1}{4}$  cents per 1,000,000 gallons for the salt, the other expenses remaining the same and nothing being charged for the electric current, as this was furnished by the hydraulic power. This gives a total cost by the electrolytic process of  $11\frac{3}{4}$  cents per 1,000,000 gallons. If interest on investment and depreciation charges were added, the total cost of this process would be between 20 and 25 cents.

This test seems to have demonstrated that by adding hypochlorite of lime or soda to a water, its organic color will be reduced; there will be an oxidation of organic matter; the carbonic acid will be reduced; the total solid matter in the water will be increased, and, in the case of hypochlorite of lime, the total hardness of the water will be increased. With hypochlorite of soda there will be no increase in hardness, the most important chemical change which is brought about in this process being the reduction of carbonic acid. This last has considerable practical significance from the standpoint of incrusting and corrosive action of water on iron and steel pipe brought about by the action of carbonic acid. Objections to this method based upon the liberation of free chlorine are invalid, since free chlorine cannot be liberated from hypochlorite of either

lime or soda in a natural water; and even if it could be, the chlorine would immediately recombine with the hydrogen of the water, and thus cease to be free.

## HOLLAND WATER WORKS REPORT

THE promptly issued report of the Board of Public Works of Holland, Mich., for the year ending March 15, 1909, covering the operation of the water works and electric light plants, is remarkably full and compact in its statement of their finances. The total receipts from water were \$23,086.34 and the expenditures \$21,221.90. The former include \$8,155 for rental of 233 hydrants at \$35.00 each. The expenditures include operating expenses, interest on the bonded indebtedness of \$68,000, lost taxes of \$1,000 and depreciation of \$4,645.70. In addition to maintenance, \$4,353.38 was spent in permanent improvements, about \$2,000 of which was received from the city treasury and the balance from the receipts of the plant. Of the operating expenses about \$4,000 was for salaries, \$5,500 for current for the electric pump and \$970 for fuel. About \$1,000 was spent in repairs. The depreciation is estimated systematically, rather than being taken simply as a percentage of the total cost, as is sometimes done. No depreciation is estimated on land; that on buildings is taken at 5 per cent; on wells, stationary equipment, standpipe and meters at 6 per cent, and that on the pipe line at 2 per cent. The present value of each is estimated by adding to its value a year previous the money spent in the upkeep and deducting the percentage of depreciation, estimated as stated. The total depreciation of the plant so far is estimated to have been \$37,185. The construction of the plant since 1882 has cost about \$173,000. The cost of production, interest and lost taxes has totaled about \$193,000 and the gross earnings have been about \$240,000. The electric light report is given with the same excellent detail.



## PURCHASE OF COAL BY HEAT UNITS

Cleveland Water Department's Methods and Specifications  
—Prices and Results Under This Method During  
1908—Purchasing Oil by Water Pumped

E. W. BEMIS, Supt. of Water Works, Cleveland, O.

Paper read before the American Water Works Association

THE Water Department of Cleveland, O., pumps an average of about 52,000,000 gallons a day against a dynamic head of about 200 feet and, at another station, repumps about 10 per cent of this against, approximately, the same head. For this purpose from 28,000 to 29,000 tons of bituminous slack from the Pittsburg district or from Ohio are used yearly. By a series of steps we have at last reached the method of buying this coal that will be described herewith. The underlying principle is the payment for the coal according to calorimetric tests of the heat value of each car as compared with the heating value of the sample coal submitted by the bidder before entering into contract. In an indirect way, however, attention is also paid to the amount of ash and other refuse. Perhaps the matter will be most clearly understood by an account of our last contract.

On October 31, 1908, the Rail & River Coal Company was given a year's contract at \$1.55 per short ton. Their sample car when used on an 8-hour run under some of our boilers was found to give better results per dollar's worth of coal than that of the other bidders. This sample car contained 13,300 B.T.U., or British thermal units, per pound. The contract provided that every car should be tested by the department's own examiner. Whenever any car of coal was found to have less than 12,000 B.T.U., it was to be put in a class by itself and a reduction made in the price paid for such coal equal to 3 cents per ton for each 100 B.T.U. that the coal in that car fell below the standard of 13,300.

For example, if the coal was 11,000 B.T.U. in some cars, then the price is to be found by deducting 23 times 3 cents or 69 cents from the price bid of \$1.55. All the rest of the coal each month is averaged with respect to its heat units and a reduction of 1.5 cents per ton is made from every hundred B.T.U. below 13,300 and a similar premium is added for every hundred average heat units above 13,300.

Under this contract, six estimates had been made out and paid at the time of the preparation of this paper in May. The following table gives the result:

PRESENT CONTRACT PRICES

Est. No.	For the Month.	Tons.	Average B. T. U.	Price.	Amount.
1	November, '08.....	1154.80	13,466	\$1.58	\$1,824.58
2	December, '08.....	1583.18	13,355	1.565	2,480.21
3	January, '09.....	2129.77	13,218	1.535	3,269.47
3	January, '09.....	30.25	10,776	.77	23.29
3	January, '09.....	32.00	11,384	.95	31.25
4	February, '09.....	2028.43	13,475	1.58	3,206.06
5	March, '09.....	1606.14	13,326	1.565	2,515.58
6	April, '09.....	1640.54	13,466	1.58	2,593.33
Total .....			10205.20		\$15,943.77

\*The calculations made by Mr. Schulz are shown in the following table:

B.T.U. per lb. of Coal	Per cent of Combustible B.T.U. per lb.	Per cent of Ash = 100% - (2)	Per cent of Refuse = (2) × 5.55%	Per cent of Total Ash and Refuse = (3) + (4)	PER CENT INCREASE IN ASH AND REFUSE OVER STANDARD COAL		Coal Required 13,600 Item (1)	Ash and Refuse = Item (8) × Ash and Refuse per Ton	INCREASE IN ASH AND REFUSE		Remarks
					Total	Av. per 100 B.T.U.			Total	For Each 100 B.T.U. Decrease in Heating Value	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
13,600	90.	10.	5.	15.			1.00	0.15			
13,500	89.34	10.66	4.96	15.62	0.62	0.62	1.007407	0.1574	0.0074	0.0074 tons	14.8 lbs.
13,400	88.68	11.32	4.92	16.24	1.24	0.62	1.014925	0.1648	0.0148	0.0074 "	14.8 "
13,000	86.03	13.97	4.77	18.74	3.74	0.625	1.046154	0.1960	0.0460	0.0078 "	15.6 "
12,100	80.07	19.93	4.44	24.37	9.37	0.625	1.123967	0.2739	0.1239	0.0086 "	17.2 "
12,000	79.41	20.59	4.41	25.00	10.00	0.625	1.133333	0.2833	0.1333	0.0094 "	18.8 "
10,000	66.18	33.82	3.67	37.49	22.49	0.625	1.36	0.5099	0.3599	0.01133 "	22.66 "

Taking 13,600 B.T.U. as the standard, then each 100 B.T.U. is  $\frac{1}{10}$  of this. Consequently the value of the coal as a heat producer is  $\frac{1}{10}$  less for each 100 units deficiency. If the price is \$1.79, then  $\frac{1}{10}$  of this is about 1.32 cents, to be deducted from the price. But the amount of ash and refuse is increased also, and the cost of handling this also should be deducted. This increase is shown by column (7), to be about 0.62 per cent for each 100 B.T.U.; and column (9) gives the tons of ash and refuse to be handled when obtaining the heat which would be given by a ton of standard coal. Down to about 13,000 B.T.U. this increases about 15 pounds per ton for each decrease of 100 B.T.U.;  $\frac{1}{10}$  of 25 cents (the assumed cost of handling a ton of ashes) is about 0.19 cents, to be deducted from the price. This added to 1.32 cents equals about 1.51 cents, the total amount deducted for each 100 B.T.U. deficiency.

It will be observed that in January there were two cars of such low heat units that the price per ton was only 77 cents for the 30 tons having an average of only 10,776 B.T.U., and 95 cents for the other car of 32 tons having an average of 11,384 B.T.U. It will also be noticed that the average price that month, January, 1909, for the rest of the coal, about 70 cars, was \$1.535. Every other month the coal has averaged better than the standard car and the average price has, therefore, been from 1.5 cents to 3 cents a ton above the bid. The average price on the entire coal used during the first six months of the present contract has been \$1.562, or 1.2 cents above the contract price. Another company having the contract for coal in the previous two years at \$1.79 on Pittsburg coal with 13,624 B.T.U. in the sample car secured an average price in 1906-07 of \$1.74 and in 1908 of \$1.734.

The difficult question has been the determination of how much reduction should be made in the allowance for coal for every hundred reduction in heat units. If the question of ash and refuse did not affect the matter, a reduction of about  $1\frac{1}{3}$  cents per ton would be sufficient instead of  $1\frac{1}{2}$  cents actually incorporated in the contract for moderate reduction or increase of heat units and 3 cents for large reductions. The 3 cents is in the nature of a penalty. The scientific reduction per heat unit has been worked out by the Chief Engineer of the Water Department, Mr. C. F. Schulz. He starts with the assumption that a pound of the standard coal (such as is generally furnished to the Water Department) when dry contains 13,600 B.T.U. and costs \$1.79 per ton, and that the cost of removing the ashes and refuse is 25 cents per ton of such ashes. The cost of unloading the coal from the cars into bins underneath the same by merely dumping the hopper cars is so slight as to be neglected.

It was further assumed that in coal of standard quality there is 10 per cent of ashes and 5 per cent of unburned combustible or refuse. In other words, there is 90 per cent of combustible in coal of standard quality, although only 85 per cent is consumed. The unburned combustible is 5 per cent of the coal, or 5.55 per cent of the combustible part of the coal; that is, of the 90 per cent capable of use. If a pound of coal contains only 90 per cent of combustible, then a pound of combustible contains  $1\frac{1}{9}$  as many heat units as a pound of coal; and  $1\frac{1}{9}$  of 13,600 B.T.U. is 15,111 B.T.U. The refuse in all cases is assumed to remain 5.55 per cent of the combustible.\*

The quality of coal obtained under these contracts has been more uniform and satisfactory than previously. We may not have the data to prove the assertion, but we fully believe that this method of purchase has resulted in a considerable saving to the department.

## SUMMARY OF COAL SPECIFICATIONS

The specifications of last September had the usual provisions regarding time and place of delivery, approximate amount of coal needed, the certified check to accompany the bid, the bond for the contract, etc. The bidders were required to state the

name and location of the mines and the thickness of the veins from which the coal was to be furnished and the approximate amount from each mine. About 95 per cent of the coal was to be slack and all of it should be, if desired by the Superintendent of the Water Department. The coal was to be "clean, free from stone, slate and other impurities, and equal in all respects to the best products of the mines from which it was produced and to the sample furnished." It must also be "fresh mined, dry burning coal" and not coal that melts or adheres to the grates.

Provisions for furnishing a sample carload or more for tests under boilers and otherwise, and further provisions for penalties and premiums, according to the heat units, as already described, are in these specifications. The city can accept the company's weight or may have any or all the cars, both loaded and light, weighed at its own expense on the city's track scales. No demurrage is paid on account of delays in unloading cars if caused by either the contractor or the railroad company placing more cars at any one time than can be unloaded readily, or through any other fault of contractor or company.

#### PURCHASING OIL

On August 5, 1905, the Cleveland Water Department, following the example of Buffalo and, I think, St. Paul, began buying oil on the basis of a price per million gallons of water pumped, instead of so much per gallon, as hitherto. The result has been that we get oil at a little more than half of the price previously paid. The following table gives the cost of oil, both cylinder and engine, and of grease; or, in other words, the total cost of lubricants per million gallons of water pumped, and also the gallons of cylinder and engine oil per million gallons of water, and the average cost per gallon of oil, both before and after August 5, 1905. When oil was bought by the gallon or barrel, the department owned the barrels, while that was not true when oil was bought by the water pumped.

Allowance is made for this in the table:

Year.	Gallons of Oil per Million Gallons of Water.	Average Cost per Gallon.	Cost of Oil per Million Gallons of Water.	Cost of Grease per Million Gallons of Water.	Cost of Lubricants per Million Gallons of Water.
1903 .....	0.6336	19.68c	12.490c	0.321c	12.79c
1904 .....	0.5880	23.80	13.994	0.962	14.96
1905* .....	0.5066	23.83	12.072	0.623	12.70
1905† .....	0.5262	11.78	6.198	0.745	6.95
1906 .....	0.4813	12.88	6.190	0.718	6.92
1907 .....	0.4285	14.28	6.119	0.603	6.724
1908 .....	0.5958	9.25	5.511	0.723	6.238

\*For first eight months of 1905.

†For last four months of 1905.

The result in every way has been satisfactory. The price has been steadily falling, as indicated by the following table:

Price of Oil per Million Gallons of Water Pumped at our Chief Station, Kirtland Street, According to Each Contract.

Date of Contract.	Successful Bidder	Price.
August 5, 1905.....	Buffalo Refining Company.....	6.95c
October 15, 1906.....	Standard Oil Company.....	6.74c
December 3, 1907.....	Buffalo Refining Company.....	6.24c
December 12, 1908.....	Standard Oil Company.....	6.15c

The more interesting and significant parts of our last oil specifications are appended.

In the oil specifications, the water pumped at each station, and some of the conditions under which it is pumped, and the amount of oil used the past year, are stated. The specifications also include the following items:

Bidders are invited to visit the stations for which oil and grease are to be furnished, and inform themselves as to the quantity and quality of the lubricants best suited for the different engines or different parts thereof.

Each bidder must submit a sample of each kind of lubricant he proposes to furnish, the samples to be properly labeled to denote the kind of the lubricant and for what particular service it is intended.

Bidders, if required, shall submit a list stating name and location of some of the firms at present supplied by them.

All oil and grease shall be of standard quality, suitable for the purpose for which it is intended, and to be approved by the Superintendent, who shall have the power to reject any oil or grease which in his opinion does not properly do the work for which it is intended.

All the lubricants furnished under any contract that may be entered into shall conform strictly to the samples submitted, and no change shall be made in the quality of the lubricants except as may be ordered by the Superintendent, or as may be mutually agreed upon between the contractor and the Superintendent. All such orders or agreements to be made in writing and to be within the price bid.

Tests and analyses may be made of the samples submitted and also of the lubricants furnished under contract in order to determine the quality of the same.

#### CONCLUSION

While further requirements in the purchase of coal and oil may be necessary in some plants, and may in fact be found desirable at some later time in Cleveland, we are very well satisfied with the result obtained by the coal and oil specifications of the last three or four years. We can heartily commend to other water departments the methods above described for the purchase of these important commodities.

#### A DEFECTIVE WATER TOWER

A WATER tank at Vermilion, S. D., which had for some time been known to be weak, fell a few weeks ago and the photograph of this shows very plainly the point of weakness. The tank was 20 feet in diameter and 16 feet high and rested upon a tower 100 feet high. The tower legs had been constructed of 12 x 12 timbers and there were eight 10 x 12 batter posts supporting and strengthening them. Each of the legs rested upon a stone foundation. The timbers forming the legs were all spliced at about the same distance from the ground one-half way up. This formed a series of weak points all at about the same elevation and apparently not sufficiently stiffened by bracing. The tank usually contained at least 12 feet depth of water, or about 100 tons, and for some time previous the supports had been noticed to be bulging at the point of splicing. As seen by the illustration, all of the legs or posts broke at this point; so readily, in fact, that the whole structure folded up like a jack-knife and the tank with its contents of water fell almost directly onto the center of the foundation. The tank itself remained intact until striking the ground, when it burst and was completely shattered.



WATER TOWER AT MOMENT OF COLLAPSE



## BIDS FOR CITY WASTE DESTRUCTORS

Lack of Definite Specifications Results in Great Variety of Bids—Cities Should Learn What They Want, and Ask for That in Precise Terms

By W. F. MORSE, S.E.

Now that the subject of disposal of municipal waste by improved methods and apparatus is assuming greater importance than ever, the methods of construction and the capacity of incineration plants that are offered should have the most careful examination that it is possible to give.

The replies to their advertisements received by several cities in the past six months show the need of some more definite and clean-cut expression of what a municipality wants in advertising for bids for a refuse disposal plant or for crematories or destructors. Comparison of the bids lately received by six different towns reveals the fact that there is a great lack of definite statement of the city's requirements, which leads to complexity and confusion, and a multiplicity of bids which are of little value in determining which plant is most desirable.

There are two ways of stating preliminary conditions when a town is advertising. First, by issuing an advertisement calling for proposals for a plant of a stated capacity, and also for one of less or greater size to give an alternative. The specifications are simply a statement of the town's requirements for a plant of a certain capacity, leaving it to the bidders to submit any proposition that, in their judgment, may be competent to meet the conditions. This brings a flood of proposals that are so different in forms of apparatus and so obscurely stated as to construction and operating costs that it is well-nigh impossible to put these on a uniform basis for comparison.

An example of this form of bidding was given at Jacksonville, Fla., where, on March 2, bids were advertised for two plants of 40 and 50 tons. The proposals received were as follows:

	40 tons.	50 tons.
Bid No. 1, 2 bids.....	\$13,900	\$15,000
Bid No. 2, 2 bids.....	46,700	49,900
Bid No. 3, 2 bids.....	39,900	42,000
Bid No. 4, 21 bids.....from	12,500	19,000
14 bids.....from	19,400	26,300
Bid No. 5, 14 bids.....from	21,800	32,300

There were received from these five bidders thirty-five proposals ranging from \$12,500 to \$46,700, for a 40-ton plant, and from \$15,000 to \$49,900 for a 50-ton plant. One company presented twenty-one bids varying from \$12,500 up to \$19,000. The range of prices through which these bids were made show the difference of \$37,400, between the highest and lowest propositions. These bids were received by the Board of Works and by the City Engineer and after long consideration of nearly two months the contract was awarded to the lowest bidder, and one of the 21 proposals of bid No. 4 was accepted.

In another case, that of the City of Easton, Pa., where the city advertised for two plants, one of 25 and one of 35 tons capacity, fourteen bids were received from seven companies, ranging from \$11,480 up to \$31,600 for the 25-ton plant, and for the 35-ton plant from \$14,662 up to \$36,500. The tabulated statement of the city engineer at Easton is an elaborate table of thirty-one separate bids received on March 22, and at the present time no award has been made of the contract.

The city of Portsmouth, Va., on January 16, advertised for one disposal plant of 25-tons capacity and received twenty-one bids, ranging from \$3,500 to \$21,750, from five different companies. In this case, after long consideration the award was made to the highest bidder for \$21,750, which is \$18,250 more than the lowest proposal presented.

The city of Richmond, Va., on April 16 received thirteen separate bids for one 50-ton plant, from five different companies, ranging in amounts from \$16,400 up to \$47,500; a difference of \$31,100 for the same work. No award has, as yet, been made. The committee after visiting many different plants, has not been able to decide which is the most suitable.

In another case, where a city was advertising for two plants of equal capacity to be built in different parts of the town, something like fifty-two bids were received from six companies, and the Board of Works found great difficulty in tabulating and analyzing them so as to obtain any uniformity for a basis of comparison. In this particular case the contract was awarded to a company which guaranteed the cost of operation not to exceed 27½ cents per ton for fuel and labor for disposal, but it was found on trial that the actual expenses for labor, fuel and operation of the plant was about 62 to 65 cents per ton. In this case it was claimed that the city did not fulfill the conditions made by the company to produce the waste in certain definite proportions of garbage, rubbish and manure, and that consequently the company was not bound by its contract to destroy the general waste except under the conditions that they themselves made as to the composition and qualities to be brought to the destructor.

The most striking difference in prices for the same work occurred in Boston, where the city advertised for two alternative bids for plants to dispose of about 600 tons of ashes and rubbish per day. The specifications provided that the work could be done either on the city's wharf property, or at an island in the harbor where the steam developed from the combustion was to be utilized for pumping sewage. The specifications were drawn in such a manner as to afford every bidder an opportunity to present his own plans and to give a price for the sale of the plant to the city at the end of three years' operation. A corporation was supposed to be formed for the purpose of taking up this work and its bid was submitted on the basis of treating 120,000 tons per year for the sum of \$114,000 per annum, or at the rate of 95 cents per ton. It offered to sell its plant to the city at the end of three years for \$332,000. Another proposal was received from a company already controlling the franchise for the disposal of garbage, by which it offered to build a plant under the same conditions and to treat the refuse for \$5,000 per year, or at the rate of 4 cents per ton, and sell its plant to the city for \$40,000.

The difference between these two proposals in the cost of operating was upward of \$109,000 per annum, while the difference between the costs of the plant which would be acquired by the city at the end of three years was something like \$202,000. The comment of the newspapers on these bids was that in one case the bids are ridiculously high and in the other case they were ridiculously low. The bids were rejected and the work still remains to be re-advertised.

All these examples demonstrate that in the present condition of this class of work there is a desire on the part of the city to obtain the apparatus best suited to its requirements, but in their anxiety to give latitude for bids they open the door to every kind of a proposal from every party who thinks that it is possible for him to perform the work, and the city is burdened with the enormous and complicated task of deciding which would be the best for its purpose. Moreover, so little accurate knowledge of the construction and operation of these crematories and disposal plants is possessed by the city officials that to obtain a clear idea of their value a pilgrimage must be undertaken at great expense to various places, and considerable time is lost in obtaining the knowledge necessary for a decision. It is a most wasteful and unsatisfactory way in which to obtain proposals that should be both definite and clearly expressed in the first instance.

There is now a sufficient amount of information accessible in books and reports by which every City Engineer can, himself, form a clear idea of the quantities and composition of the waste with which each town has to deal. If the records of the town are incomplete, as they mostly are, there is still an opportunity to obtain the knowledge required by weighing sample loads of waste as collected for a short period, and by analyzing this in a rough way by the usual methods. If this were done, and the maximum and minimum quantities of each component part of the waste stated approximately and the proposals so drawn as to confine the bids to certain definite quantities, then there would be a much more definite ground on which to base bids.

In a similar way the kind of covering house and the kind of chimney or stack desired should be definitely stated; and with this information there should be printed an idea of the local cost of labor and material that would be used by the builders.

All this can be done without the aid of expert assistance; but unfortunately it is often the case that the town is either without the necessary preliminary information or unwilling, or for some reason does not take the trouble to obtain these data before making their call for bids. The consequence is, as before stated, that a vast amount of ill-digested proposals are put before them, and in their perplexity and unwillingness to spend time and money for definite information of what they require, they sometimes accept the apparatus which in the end proves to be not the best for their purpose.

The second way of obtaining proposals for waste disposal plants will be discussed in a later paper.

### STORAGE OF RIVER WATER

Dr. A. C. Houston, an eminent English sanitarian and Director of Water Examinations at London, recently presented to the (London) Metropolitan Water Board a report on the "Storage of River Waters," in which he discussed at considerable length the advantages to be obtained by storage of river waters. These advantages may be classified under the heads of reduction of bacteria, of suspended matter, of color, of nitrogen, and of hardness, together with other miscellaneous advantages. As a conclusion to the paper the author summarizes the advantages as follows:

Storage produces the following effects:

1. Reduces the number of bacteria of all sorts.
2. Reduces the number of bacteria capable of growing on agar at blood heat.
3. Reduces the number of bacteria capable of growing in a bile-salt medium at blood heat, chiefly excremental bacteria.
4. Reduces the number of coli-like microbes.
5. Reduces the number of typical *B. coli*.
6. Alters certain bacteriological river water ratios; for example, it reduces the number of typical *B. coli* to a proportionately greater extent than it reduces the number of bacteria of all sorts.
7. If sufficiently prolonged, devitalizes the microbes of water born diseases (e. g., the typhoid bacillus and the cholera vibrio).
8. Reduces the amount of suspended matter.
9. Reduces the amount of color.
10. Reduces the amount of ammoniacal nitrogen.
11. Reduces the amount of oxygen absorbed from permanganate.
12. Usually reduces the hardness and may reduce (or alter the quality of) the albuminoid nitrogen.
13. Alters certain chemical river water ratios; for example, the color results improve more than the results yielded by the permanganate tests.
14. Has a marked "leveling" effect on the totality of water delivered to the filter beds.
15. Tends generally to lengthen the life of the filters. (Only under exceptional conditions is the converse true.)
16. An adequately stored water is to be regarded as a "safe" water, and the "safety change" which has occurred in a stored water can be recognized by appropriate tests.
17. The use of stored water enables a constant check to be maintained on the safety of London's water antecedent to, and irrespective of, filtration.
18. The use of stored water goes far to wipe out the gravity of the charge that the chief sources of London's water supply are from sewage polluted rivers.
19. The use of adequately stored waters renders any accidental breakdown in the filtering arrangements much less serious than might otherwise be the case.

The author is careful to state, however, that he does not suggest the use of storage as a substitute for filtration, but that his plea is for storage plus filtration. For London's supply he concludes that thirty days' storage is desirable, but he leaves

unanswered the question whether this length of time should be fixed as a maximum or as a minimum duration. To consider it as a minimum would entail the construction of huge reservoirs having a capacity far greater than 30 days' supply of water, to allow for variations in rate of consumption. As an alternative he suggests adopting thirty days as a minimum, "but to adopt, during times of stress and storm, some additional methods of purification, antecedent to storage, or subsequent to storage, but antecedent to final sand filtration."

Dr. Houston believes "active" storage preferable to "passive" storage, meaning by the former the habitual circulation of raw water through the storage reservoir and the use, uniformly, of stored water for filtration purposes; while passive storage means utilizing the water in the storage reservoir only during periods either of drought or flood, and the prevalent use of unstored water for filtration purposes.

### CLEANING BROOKLYN WATER MAINS

#### Method of Removing Tubercles and Deposits from Six-Inch to Thirty-six-Inch Pipe—Appliances Used— Prices Paid for Cleaning

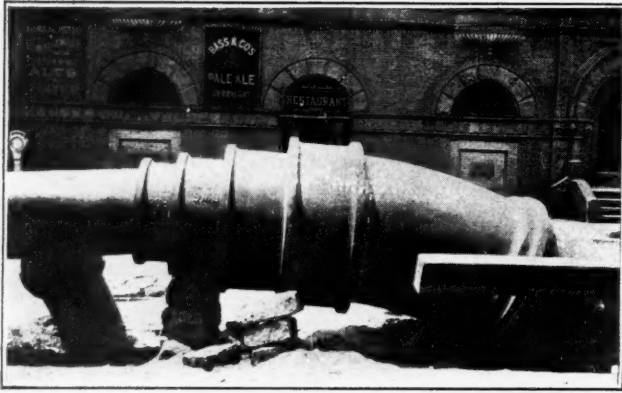
A CONTRACT is now being carried out in the Borough of Brooklyn, New York, by the Home Water Main Cleaning Company for cleaning about 35 miles of pipe, the contract also including the setting of hydrants and stop cocks, making connections and setting blow-offs, the total price for the work being \$122,978. The items and prices so far as the pipe cleaning is concerned include 34,000 linear feet of 36-inch pipe at \$1.20 per foot, 22,000 feet of 30-inch at 90 cents, 23,000 feet of 20-inch at 59 cents, 36,000 feet of 12-inch at 38 cents, 34,000 feet of 8-inch at 31 cents and 40,000 feet of 6-inch at 28 cents. The pipes to be cleaned practically include the old distribution system leading from the Prospect reservoir down through the main streets of the old city to a point on the water front near the terminal of the Brooklyn Bridge. These pipes were all laid previous to the year 1860 and were imported from Scotland. They were not dipped in tar or any other similar composition. At a later period only pipe dipped in tar or asphalt was used and in these practically no tuberculation has occurred. Previous to the letting of the contract investigations were made as to the amount of tuberculation by cutting out sections of the pipe and it was estimated that the scale averaged  $1\frac{1}{2}$  inches in thickness; incrustations of 2 inches, however, were frequently found. The specifications call for the removal of all but a maximum of  $\frac{1}{8}$  inch of the incrustation. In cases where the pipes are found to have greater than their listed diameter, the incrustation is to be removed to such an extent as to leave in the pipe a free waterway of the nominal diameter.

For the purposes of cleaning, the pipe line is divided into sections 800 to 1,000 feet long, from each end of which is removed a piece of pipe about 7 feet long. At the lower opening is attached a short line of pipe, or riser, leading to the ground surface, through which the water is discharged into the street gutter. In the case of large pipe a rather elaborate arrange-



BIFURCATED OUTLET OF 36-INCH PIPE

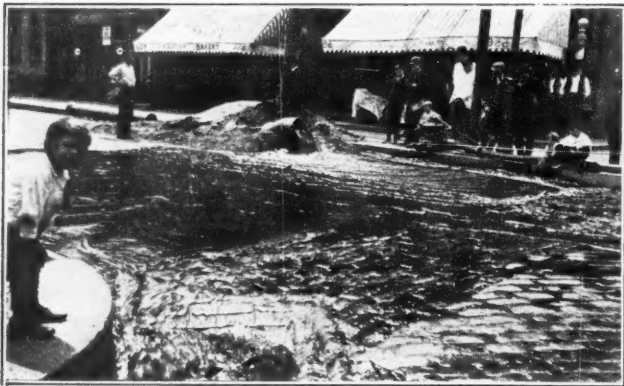




REDUCTION OF 36-INCH OUTLET TO TWO 12-INCH PIPES

ment is used at the outlet, as shown in the photograph, to prevent damage by the issuing water. Here a 36-inch pipe was brought to the surface where, by using a number of telescoping sections of short pipes leaded together, it was reduced to two 12-inch pipes, one leading straight down the street to a catch basin, the other being carried across the street under the car tracks to the opposite gutter and carried down this to another basin. Each of these two pipes was provided with a valve to regulate the flow.

The cleaning device, which is leased from the National Water Main Cleaning Company, is placed in one of the sections and the water turned on. In the case of pipes more than 12 inches in diameter the pressure of the water, which averages 35 pounds to the square inch, is sufficient to drive the machine through the pipe. In the case of pipes of 12 inches in diameter or less the procedure is somewhat different. A carrier is first inserted in the pipe for the purpose of carrying a line from the opening in which the machine is to be inserted down to the one which is to be used as an outlet. A  $\frac{1}{2}$ -inch wire cable is then attached to the line, pulled back to the first opening and attached to the cleaning machine and used for drawing it through. The carrier is simply a light shaft containing two hollow cones on which the pressure of the water acts and forces it easily through the pipe.



OUTLET OF 12-INCH PIPE, SHOWING CABLE BY WHICH CLEANING DEVICE IS HAULED

The pipe-cleaning machine itself consists of a shaft in five sections connected by universal joints. The rear section carries two discs on which the water presses, which pressure forces it through the pipes, with the assistance of the cable in the smaller pipes, as explained above. These discs contain a regulator similar to an ordinary damper, by means of which the amount of water which is allowed to flow through the pipe for the purpose of carrying away the debris is regulated. The adjustment of this damper is said to require considerable skill, as the passage of too much or too little water increases the difficulty of the work. The other four sections of the pipe cleaner carry teeth, each section a different kind. The front section contains plows which cut into the incrustation; this is followed by a circle of teeth much like a saw; the third section carries teeth shaped like a spatula and the last section next to

the discs carries knives. Each set of teeth is carried on a crown-shaped band attached to a disc. The teeth are in the rear of the disc and are pressed outward against the pipe by the elasticity of the steel projection from the band, this arrangement giving the teeth the crown-like appearance already mentioned. The machine itself is about  $5\frac{1}{2}$  feet long for 12-inch pipe. It is sufficiently flexible to pass a 45-degree bend, but was stopped in one instance by a 90-degree bend where the pipe had been offset to go around an obstruction. Another instance where the machine has been stopped was in the case of the finding of a special casting not known to exist, which consisted of a 12x6-inch cross connection with a gate valve on each line, which valves had been left partly closed. Sometimes the machine is stopped by a poorly made lead joint, where a large amount of lead had been allowed to run into the pipe when it was laid, the teeth slipping between the edge of the lead and the pipe; but this difficulty can generally be overcome by operating the machine down hill.

As to the speed of the work, the whole contract is to be done in 150 working days. The machine has gone through 1,000 feet of large pipe under water pressure alone in 10 minutes. The time of cleaning a smaller 6-inch pipe, where the cable is used, is about one hour. A much greater time, however, is occupied in cutting out the sections of pipe and getting ready for cleaning; and the stoppage of the machine between openings, as referred to above, means the loss of several hours in removing the obstacle.

The accompanying illustrations show the process of cleaning a section of 12-inch pipe on Sixth street and Driggs avenue. After everything had been got in readiness the machine was drawn through by seven men working at a windlass in one hour's time. The water came out of the riser, previously described, which led to the surface from the main, at an angle of 30 degrees with the horizontal, for the purpose of giving a free discharge to the water as well as to bring the machine to the surface where it could be removed easily. At first



WINDLASS FOR HANDLING CABLE, AND TOOL BOX

the water was only slightly discolored. After about one-half hour had elapsed the water became thick and muddy and during the last ten or fifteen minutes of the operation the broken up tubercles accumulated rapidly under the outlet and finally the machine, with a mass of debris, was pulled out of the pipe. Water was allowed to continue to flow for a short time to clear the pipe. In the instance observed the pile of rubbish amounted to about three or four cubic yards, but of course a large quantity of fine material had been carried out in suspension and washed into the catch basins. In cleaning another section at Plymouth and Adams streets the sediment accumulated under the outlet amounted to rather less than one cubic yard.

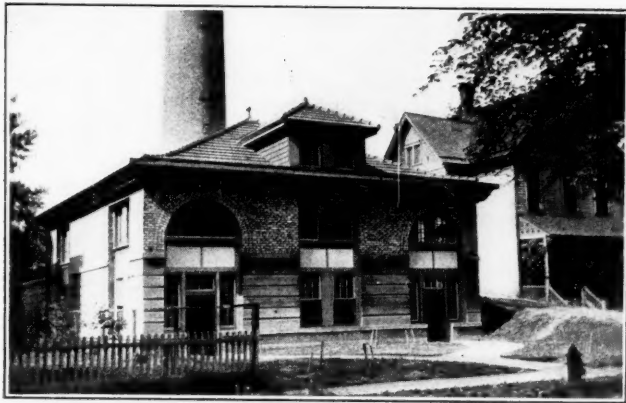
This work is being done under the direction of William C. Cozier, Deputy Commissioner of the Department of Water Supply, Gas and Electricity. Walter E. Spear is the Chief Engineer. C. P. Sullivan is the Assistant Engineer in direct charge of the work.



## OAK PARK INCINERATING PLANT

Thirty-Ton Plant Located Among Residences—Operates Eight or Nine Hours a Day—No Nuisance Created—Wagons and Plant Kept Clean

OAK PARK, Ill., is one of the fine residential suburbs of Chicago and has a population of between eighteen and twenty thousand. Its people are for the most part well-to-do and very progressive. It has one of the finest municipal buildings of any city of its size and might be termed a model city, although it is known as the Village of Oak Park. Until the present incinerator plant was put into service the refuse was deposited on dumps, first in the village limits and later in two or three of the surrounding towns. In each case, however, vigorous objections were made to the nuisance caused and finally it was decided to build a disposal plant.



BUILDING OF OAK PARK INCINERATION PLANT

One of the first matters considered was the question of location. The city owned a piece of property near the municipal building and near the center of the village which would make a desirable location for the plant, both because it was already municipal property and also on account of its central situation; but residents in the neighborhood and members of the Council both objected to it on the ground that a plant located there might create a nuisance. For nearly a year after the decision to build a plant had been reached, investigations on the nuisance question were carried on. Visits were made to other cities and to various plants which Lewis and Kitchen, the engineers, had built and it was finally decided that it was safe to build in this location. As will be seen in the photographs, the lot in question was in the middle of a row of cottages.

As has been mentioned before, Oak Park is a residence village. There is practically no manufacturing and but a few stores to meet local demands, so that the wastes to be taken care of consist almost entirely of house refuse and ashes. This should be borne in mind in consideration of the fuel required for burning, for few boxes, paper, etc., are available to assist in combustion.

Being a city of beautiful homes it was also essential that the building which housed the plant should be in keeping with its surroundings and the photograph shows how successful the result has been. The building is of buff brick two stories high, with a red tile roof. A radial brick stack 150 feet high rises in the rear. An inclined drive at one side leads to the entrance doors on the second floor at the back.

While at the present time and for some years to come the demands on the plant will not much exceed ten tons per day, the engineers recommended what is commonly known as a thirty-ton plant, or one capable of burning thirty tons in twenty-four hours. In view of the objections of some of the residents it was thought that such a plant, being capable of burning in six hours all the refuse delivered, could be operated during the late hours of the night even if there were some slight nuisance.

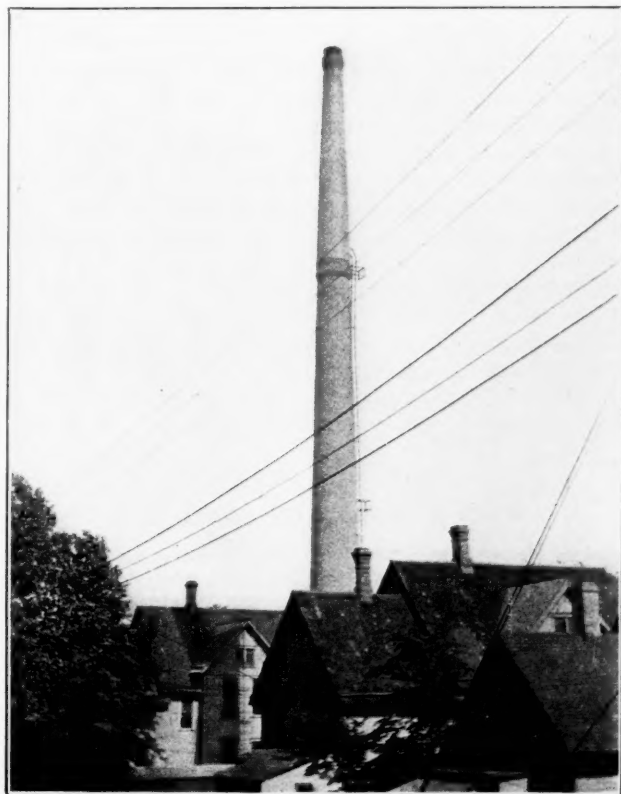
To convince the people that there would be no nuisance and that they were sure of their ground, the engineers guaranteed that the plant would entirely incinerate thirty tons of garbage in twenty-four hours without nuisance about the plant or from the chimney "and that the cost of destroying thirty tons of garbage at one burning will not exceed five dollars for labor and fuel or seventeen cents per ton." Furthermore they gave a bond for \$10,000 that they would fulfill these conditions and also to guarantee the proper construction, efficiency and durability of the plant; this bond to run for three years. The contract price of the plant was \$11,858.

The plant was completed in 1908 and was run intermittently for some time, during which minor defects developed which were afterward remedied. The stack as originally built was 100 feet high and it was found that the slight vapor coming from it was occasionally noticeable at a school building near by. Consequently the plant was shut down and an additional 50 feet built on the stack.

It was during this period that a laughable episode occurred and one which illustrated the popular feeling toward locating an incinerating plant in a residence district. While the plant was shut down many complaints were made in regard to the odors emanating from it and one woman threatened injunction suits. She was invited to visit the plant and was much surprised when she found it was not running.

The plant was started again the early part of this year and has been running continuously ever since. No complaints of nuisance are now received and everyone seems well satisfied with the operation.

Two two-horse wagons with metal bodies are used in collecting the garbage. These are able to make the entire round of the village in about five days. Each morning they leave the stable at four o'clock and deliver their first load to the incinerator between six and seven. Six loads of about one and one-half tons each are collected each day, making between nine and ten tons of refuse destroyed. The last loads are delivered about noon. The incinerator operator starts his fires about six o'clock in the morning and the burning is finished between two and three in the afternoon. The wagons in delivering



STACK OF INCINERATION PLANT DURING OPERATION

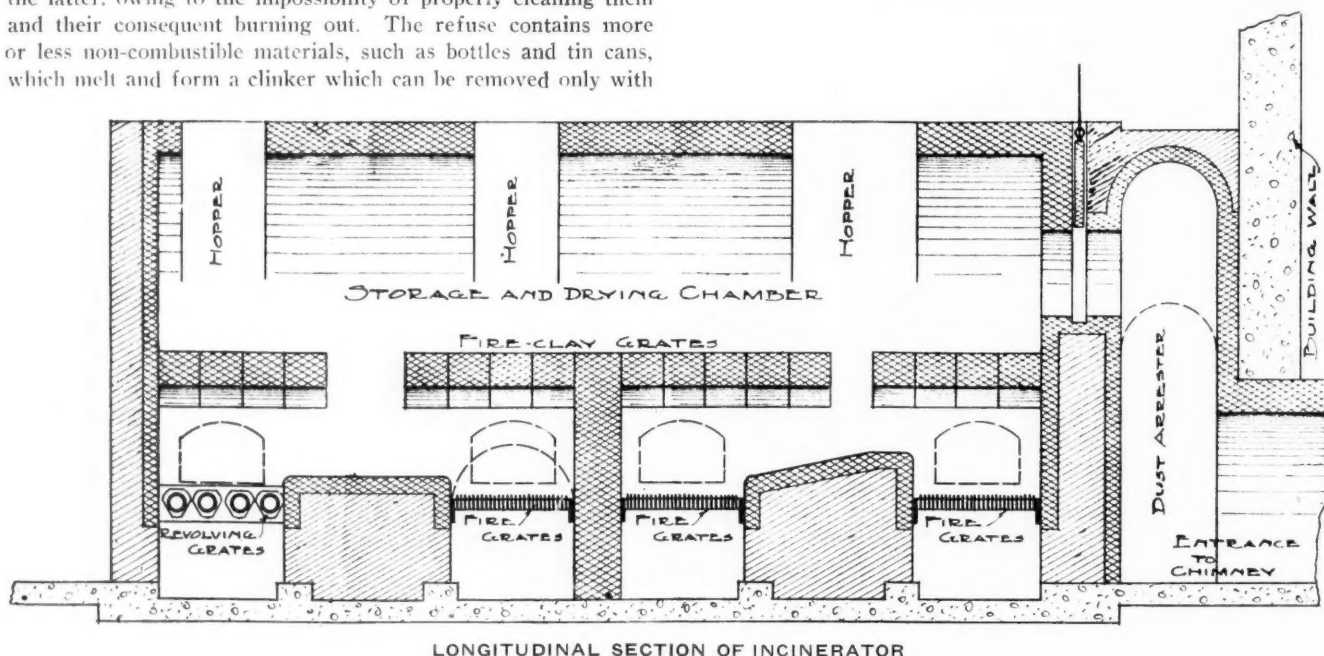
A faint haze coming from the stack does not show in photograph

their material drive onto the second floor and dump directly through large openings onto the drying racks of the incinerator. Immediately after the wagons dump the floor is thoroughly washed off. At the close of each day's work the wagons also are thoroughly cleaned. One man is employed at the plant to assist in dumping the wagons and keeping things clean. Another looks after the fires. At the present time, while burning between nine and ten tons of garbage, from 1,400 to 1,600 pounds of coal are used, or about 0.07 ton per ton of garbage.

As will be noticed from the drawing, two double units are installed. Half of each unit can be operated alone and that is what is being done now. If all of them were operated continuously it is probable that fifty tons of garbage could easily be handled each day. With this method of operation there are always reserve units which can be put in use in case of accidents. Part of the grates are stationary and part rolling. The attendant stated that some difficulty had been experienced with the latter, owing to the impossibility of properly cleaning them and their consequent burning out. The refuse contains more or less non-combustible materials, such as bottles and tin cans, which melt and form a clinker which can be removed only with

agency in the future. The reservoir is surrounded by extensive grounds, which are used as a park. At its upper end a summer Chautauqua has been established, and the reservoir is used extensively for boating and fishing. The water from this supply is not supposed to be used for drinking purposes, such water being obtained by the citizens from private wells. From here the water is pumped to the town against a head of 200 feet. The average consumption is 1,156,000 gallons per day.

From a purely financial standpoint the Paris water works might be considered a failure, as the cost to date has been \$152,300, and the annual income just about balances the cost of operation. The cost of pumping is  $2\frac{1}{2}$  cents per 1,000 gallons. Water is furnished to 180 fire hydrants free of charge, and the city buildings, schools and charitable institutions receive free water; also many manufacturers receive water free as a bonus for locating in the city. What allowance should be made for all these free services it is impos-



a slice bar, and the rolling grates are so constructed that a slice bar cannot be used on them advantageously. It is the intention to change these grates to the stationary type.

It will be seen that the fuel charge is about 20 cents a ton, and the labor is possibly 30 cents a ton more, which is considerably over the cost guaranteed by the engineers; but it must be remembered that only about nine tons are burned at one time and that the fires go entirely out each day, requiring a fresh starting, with its consequent increase in coal consumption.

On a recent visit practically no odor was noticeable in the plant itself and absolutely none outside. A faint blue haze comes from the stack but no soot was visible in this. The resultant ash is clean and fine. The attendants handle the plant in an excellent manner and keep everything scrupulously clean.

#### WATER WORKS OF PARIS, ILL.

PARIS, ILL., a city of about 10,000 population, has a municipally owned water works and electric light plant, the machinery for both being housed in the same building. The lighting plant has a capacity of 200 lamps, but only 155 are yet in use. Magnetite lamps of 2,000 c.p. each are used. The actual cost of operating these lamps last year on a moonlight schedule was \$35.55, which interest and depreciation charges would bring up to about \$50 per year.

The water supply consists of drainage from a considerable area, which is impounded in a 130,000,000-gallon reservoir. In 1908 the supply was nearly exhausted, and the dam of the reservoir was raised 18 inches to guard against such an emer-

sible to say, but it would certainly furnish a considerable balance to offset interest and depreciation and other fixed charges.

#### SEWERAGE MAINTENANCE IN SOMERVILLE

THE report of the city of Somerville, Mass., for 1908 contains a number of interesting details concerning the maintenance of sewers in that city. A permanent force of men and teams is kept continually at work flushing, cleaning and repairing the sewer system, which contains 92.1 miles of sanitary and 6.5 miles of storm sewers. During the year about 9,500 cubic yards of deposit were removed from catch basins and sewers. The average cost per mile for cleaning and maintenance of the sewers was about \$27.80, and the maintenance of the 1,515 catch basins about \$4.90 each. Maintenance of yards and buildings and sundry expenses of the department, including the repairing of 79 catch basins and 96 manholes and repairs and changes in line and grade of some of the old sewers, amounted to \$1,836 in addition to the above.

The contract prices for excavating, pipe laying and refilling for certain of the sewers built during the year were as follows: Eight-inch sewer laid in sand, 37 cts. a foot in 5.5-foot trench; 40 cts. a foot in 6.2-foot trench; 53 cts. in 7.4-foot trench; 58 cts. in 8.5-foot, and 69 cts. in 8.7-foot trench. Eight-inch sewer in hard pan, 7.1 feet deep, 49 cts., and in made ground, 8.6 feet deep, 70 cts. Ten-inch pipe in made ground, 6 feet deep, 50 cts. Twelve-inch pipe in made ground, 7.5 feet deep, 65 cts., and 11.5 feet deep, 98 cts.

## EMSCHER SEWAGE TANKS

Sedimentation Tanks Which Keep Septic Matter and Flowing Sewage Separated—Effluent Readily Oxidized and Not Offensive—Details of Tanks for Cities of Five and of Ten Thousand Population

THAT the problem of sewage disposal is greatly facilitated by a preliminary separation of a large part of the suspended matter from the containing liquid is being realized more and more fully and generally, and much of the effort toward improvements in sewage methods during the past few years has been in the direction of perfecting apparatus or methods for effecting such separation. With irrigation or intermittent filtration such preliminary treatment is not so essential, since the soil itself effects such separation in its upper layers. The expense of frequent cleanings of contact beds, however, can be avoided by such preliminary separation, and the operation of sprinkling filters is more efficiently and economically carried on when preceded by such treatment.

Some months ago we described a style of tank devised by Mr. Travis, called by him the "hydrolytic," in which multiplicity of surfaces were provided for utilizing the principle of surface adhesion for the removal of colloidal matters. A later method of effecting the same end has been adopted in a coal and iron district in the valley of the Emscher, a small tributary of the Rhine. All the sewage works of this district, including large intercepting sewers and a purification plant, are in charge of a commission. Because these tanks were first adopted by this commission, they are known as Emscher tanks, although ten or more similar tanks have been constructed in other sections. These tanks are described in a recent issue of the *Surveyor* by Mr. K. Imhoff, engineer of the Emscher Commission, which description we abstract as follows:

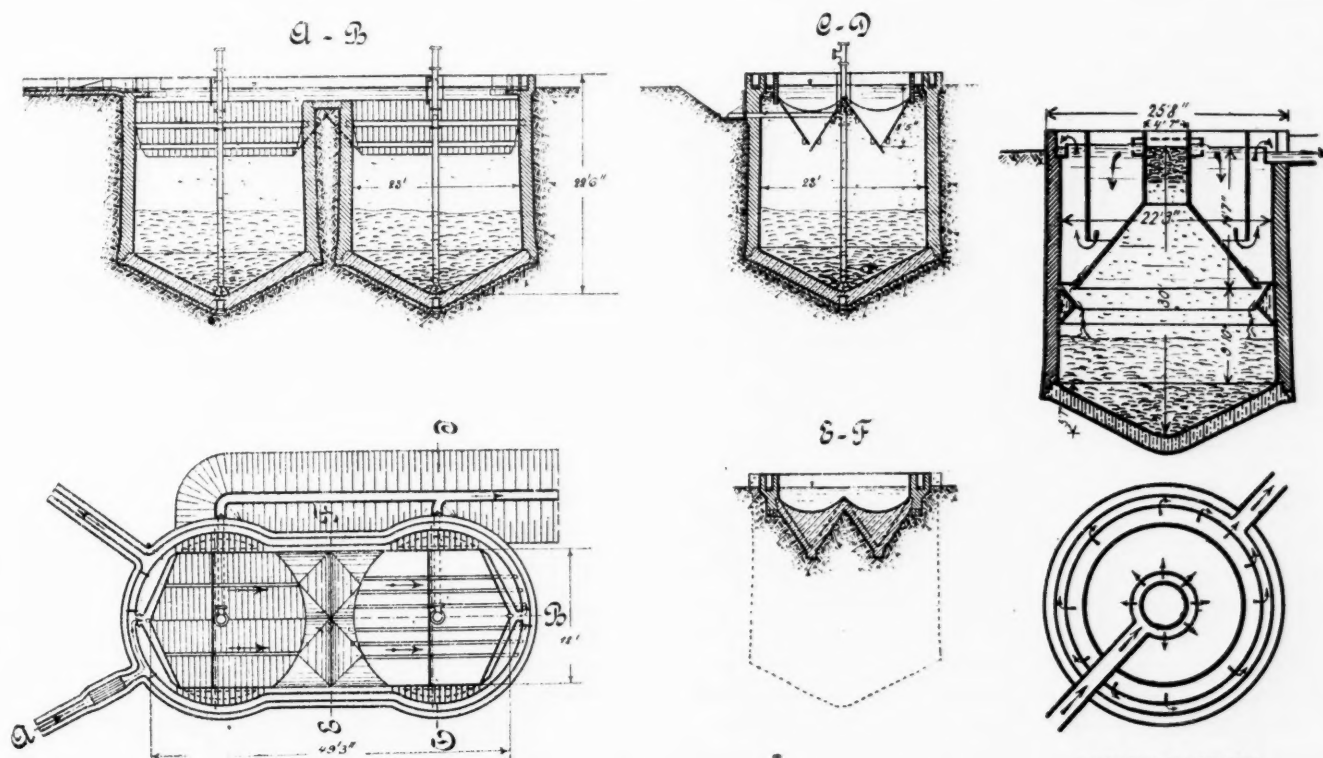
The plant consists essentially of deep tanks which receive the sludge. In the upper part of these tanks are so-called subsidence chambers, through which the water flows, and which are partially separated from the lower tanks by inclined floors. The sludge slides down these floors and passes through slots at the bottom into the sludge tanks below. The sludge is, therefore, continuously and promptly removed from the subsidence chambers without any supervision. As the sludge

accumulates in the tanks beneath, these gradually develop into septic tanks. The flowing water, however, does not pass through or mingle with the material in these, and so is kept free from putrefaction. The plant may consist of a single tank, or several tanks may be used in series.

The author shows outline plans for two installations, one for a city of 10,000 population and one for a city of 5,000. In the former are two tanks, a subsidence chamber being placed over each. When there are two or more tanks it is important that each receive the same amount of sludge, so that decomposition may occupy the same time in each tank. For this reason it is arranged, as shown, so that the direction of flow of the sewage in the distributing channel around the tanks may be alternated, the sewage flowing for a few days or weeks in one direction through the tanks, and then for an equal length of time in the opposite direction. Without this change the first tank of the series would continually receive a large proportion of sandy, solid sludge, and the other tank or tanks organic liquid matter only.

The second illustration shows a plant designed for a population of 5,000, the sewage from which is well diluted. The water in this case enters at the center and flows radially outward and downward, thence under an annular vertical baffle wall and upward to an overflow gutter around the outer edge. The sedimentation is supposed to be assisted by the initial downward flow, and the sludge to slide from the inverted funnel shaped surface into the sludge tank below. (A resemblance will be noted in each tank to the Dortmund tank, which was in vogue 15 or 20 years ago). It is, of course, essential that the dimensions be such that the velocity of the ascending water be not greater than that of the sinking particles.

It is seen that in both these plants there is little opportunity for any considerable intermingling of the water in the sludge tank and that flowing across its top, except the small quantity of liquid which is displaced by the entering sludge. Pipes are



EMSCHER DOUBLE TANK FOR POPULATION OF 10,000

EMSCHER TANK FOR POPULATION OF 5,000



provided for drawing the sludge off at intervals. Sludge beds are provided which are sometimes lower than the tank, when the sludge flows onto them by gravity; but where this is not the case the sludge is pumped. The sludge has the characteristics of true septic sludge, having lost its stringy nature and the greater part of its offensive odor and containing only 75 or 80 per cent of water. Provision is made for admitting water at the bottom of the tank to start the sludge flowing, but this is necessary only when it contains an unusually large amount of sand.

The size of the subsidence tank is dependent upon the quantity of sewage to be dealt with and the period of subsidence desired. No special allowance need be made for accumulation, since the working never need be interrupted. The subsidence and septic tanks combined need be no larger than the ordinary subsidence tank. (It would seem to be necessary, however, that the depth be considerably greater than the ordinary sedimentation or subsidence tank.) Mr. Imhoff states that the effluent from these tanks is much more readily oxidized by finishing filters than is that from the ordinary septic tank. It is not offensive, that from the Emscher district flowing a considerable distance to the river in open channels.

In a separate communication the author discusses the charge which had been made that these tanks were a German imitation of the Travis hydrolytic tank which has been patented in England. He calls attention to the fact that in the hydrolytic tank one-fifth of the water flows through the septic tank proper, and on emerging pollutes the other four-fifths. This, he says, might be of little importance where the effluent was to receive further purification; but in the Emscher district the effluent from most of the plants is discharged directly into the water courses, and under these conditions even this amount of pollution was objectionable. While the tanks described above may have been aided in their development by the ideas of Mr. Travis, they are considered to be an improvement upon the hydrolytic tank. The commission had experimented with the Travis tank, but found that the discharge water was always more or less decomposed, not only for the reason just stated, but partly because the slope of the walls was not sufficiently steep to cause the sludge to slide into the tank below, and partly also because cross currents occurred between the two subsidence tanks located at the sides of the septic tank, and these currents disturbed the water in the septic tank.

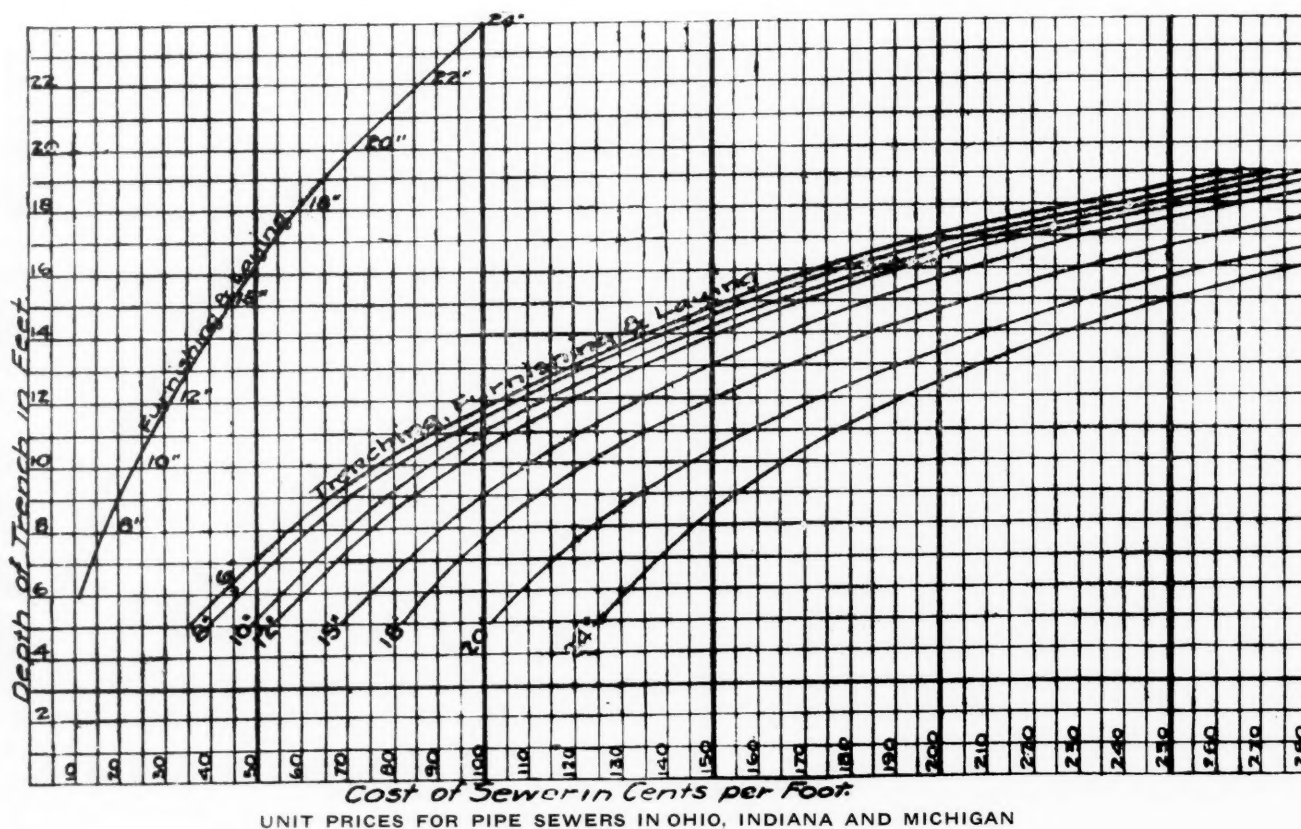
### PRICES FOR PIPE SEWERS

THE diagram at the foot of this page was plotted from the results of one hundred bids received during 1908, the curves representing, one the average bids for furnishing and laying only, the others the averages for furnishing, trenching and laying 6 to 24-inch pipe at depths of 5 to 19 feet. The bids used were received in the States of Ohio, Indiana and Michigan. The soil, topographic and general conditions covered a wide range. The soil included sand, gravel, loam and clay. The specifications were the same for all, however, being those of the Riggs & Sherman Company, to whom we are indebted for the diagram.

### TARRING ROADS IN NORRISTOWN

THE Borough Engineer of Norristown, Pa., Mr. S. Cameron Corson, sends us a description of a method employed by him last fall in constructing the surface of a double drive or boulevard, each drive being 25 feet wide and 2,800 feet long, giving a total length of 5,600 feet. The boulevard is nearly level, having no grade over 0.75 per cent. In constructing this the sub-grade was crowned and thoroughly rolled, and on this was placed hard local sandstone, which was broken and spread to a depth of 6 inches. This was rolled and covered with red shale rock to a depth of about one inch, or enough to fill the interstices. Over this was spread 6 inches of hard local limestone, broken to 1½ inches diameter, which was thoroughly rolled; and on this was spread about 2 inches of fine trap rock screenings.

The intention at the time was to puddle these screenings with water, but Mr. Corson obtained permission to experiment with the use of a grade of coal tar known as Tarvia X. Before applying this he harrowed up the road with a spring-tooth harrow until all of the screenings had fallen to the lower 4 inches of the 6 inches of crushed stone. The road was then rolled and the tar applied, after which fine trap rock screenings were spread and the road again rolled. As the hot sun and traffic bring the tar to the surface, this tar is covered with and absorbed by small amounts of trap rock screenings, which are applied from time to time as necessary. The wagon used to spread the Tarvia weighed 3½ tons, and was estimated to weigh 7 tons when full. It had 4-inch tires, and when driven over a section of road which had just



been finished left scarcely any impression. Mr. Corson believes that this method of applying the tar is preferable to the ordinary one of spreading it over the finished road, in that it causes it to thoroughly coat all of the crushed stones, making the road elastic and comparatively waterproof. He estimates that the cost of this was about 55 cents per square yard; but that when the men are more experienced, and by using a less costly stone, the cost would not be over 35 cents per square yard.

## AESTHETICS AND POLICE POWER

### Laws Recognizing Right of City to Control Aesthetic Appearance of Streets—Regulating Height of Buildings—Advertising Signs

By JOHN SIMPSON

THE legislative attention of the State in the exercise of its police power has hitherto been directed toward the maintenance of public safety, public health, public peace and order and the preservation of public morals. These are undoubtedly within the domain of the police power, and State statutes and municipal ordinances in furtherance of these purposes when reasonable have always been held constitutional. A decision which has just been handed down by the United States Supreme Court suggests the question whether the time has now come or is rapidly approaching when aesthetic considerations alone will be sufficient to render valid and constitutional State legislation placing restrictions upon the use of private property by an owner without compensation.

The case involved the validity of a statute authorizing the division of a city into two districts, commercial and residential, and placing a different limit for the height of buildings within these districts; the contention having been made that the discrimination shown in the case of the residential districts was for aesthetic purposes only and therefore not within the police power of the State.

There has never been any doubt as to the power of a State, as one of its police powers, to regulate and limit the height of buildings in a city provided the regulations are reasonable in their character and adapted to accomplish the purpose for which they are designed. (*People v. D'Oench*, 111 N. Y. 359; *Watertown v. Mayo*, 109 Mass. 319; *Lewis on Eminent Domain*, sec. 156; *Tiedeman on State and Federal Control of Persons and Property*, p. 754.) The question now raised is, are the police powers of the State sufficiently elastic to embrace the purpose of the preservation of the beauty and architectural symmetry of a city or a section of it?

The statutes of Massachusetts, chap. 333 of the Acts of 1904 and chap. 383 of the Acts of 1905, divide the city of Boston into commercial districts A, in which the height of the buildings is restricted to 125 feet, and residential districts B, where the height of buildings is limited to 80 feet, and in certain parts and on certain conditions (designated by a commission of three appointed under the Act of 1905), to 100 feet. The plaintiff was refused a permit to build on his lot, which was situated within one of the residential districts B, a building of a height of 124 feet 6 inches; and on his appeal to the State Supreme Court the refusal was affirmed. (*Welch v. Swasey*, 193 Mass. 364.)

It had already been decided by the Massachusetts Supreme Court, in *Commonwealth v. Boston Advertising Company*, 188 Mass. 348, that a rule made by Park Commissioners forbidding the maintenance of business signs, posters or advertisements so near a parkway in their care as to be plainly visible to the naked eye of persons in the parkway was not a reasonable regulation, being contrary to the provisions of the Constitution in taking property for a public use without providing compensation. At most the presence of the posters, etc., was an offence against good taste, and in that way alone detracted

from the pleasure only of the frequenters of such places, though the court said that "rules intended to prohibit advertisements of indecent or immoral tendencies, or signs dangerous to the physical safety of the public, no doubt would be reasonable within the meaning of the statute, and valid."

And in the case of *Attorney General v. Williams*, 174 Mass. 476, where the same court held constitutional the act of 1898, chap. 452, restricting the height of buildings near Copley Square, Boston, to a height of 100 feet, it was said that if it had been a fact that the Legislature in passing the statute was seeking to preserve the architectural symmetry of Copley Square and the statute was merely for the benefit of individual property owners, the purpose would not justify the taking of a right in land against the will of the owner; but if the Legislature, for the benefit of the public, was seeking to promote the beauty and attractiveness of a public park in the capital of the Commonwealth, and to prevent unreasonable encroachments upon the light and air which it had previously received, the court could not say that the law-making power might not determine that this was a matter of such public interest as to call for an expenditure of public money, and to justify the taking of private property.

These two cases were referred to by the State Court in *Welch v. Swasey* without disapproval, but with the opinion added "but if the primary and substantive purpose of the legislation is such as justifies the act, considerations of taste and beauty may enter in, as auxiliary."

The decision of the State Court has now been affirmed by the United States Supreme Court. It holds that the discrimination made in the heights of buildings in the different districts was reasonable, and justified by the police power. It takes the ground that taller buildings in the commercial section of the city might be less dangerous in case of fire than in the residential quarter, from their generally fireproof construction, the greater number of fire engines and better supply of water, the fact that few women or children are found there in the daytime and very few people sleep there at night. The court added, however, "that in addition to these sufficient facts, considerations of an aesthetic nature also entered into the reasons for their passage, would not invalidate them."

In a case decided by the Court of Appeals of Maryland last year (*Cochran v. Preston*, 70 Atl. 113), that is, subsequent to the State Court's decision in *Welch v. Swasey*, and prior to its affirmance by the Federal court, the Maryland court went somewhat further in expressing its opinion as to aesthetic considerations as a basis for the exercise of the police power. While admitting that the weight of authority was against the enforcement on the people of the legislative conception of artistic beauty and symmetry, *Worthington, J.*, said that it may be that, in the development of a higher civilization, the culture and refinement of the people have reached the point where the educational value of the fine arts, as expressed and embodied in architectural symmetry and harmony, is so well recognized as to give sanction, under some circumstances, to the exercise of the police power even for such purposes. The question in this case was as to the validity of the Maryland Acts, 1904, p. 63, c. 42, providing that no building except a church shall be erected in a designated locality of the city of Baltimore to exceed in height 70 feet above the surface of the street at a certain point. With the expression of opinion given above, the court held in the affirmative, on the ground that the purpose of the statute was the protection from the ravages of fire of the handsome buildings and works of art in the neighborhood.

If we compare the above opinions with the very recent decision of the New York Supreme Court (*Fifth Avenue Coach Co. v. City of New York*, 195 N. Y. 19), where it was held that the City of New York, owning the fee of its streets, might enact an ordinance prohibiting the display of advertisements on vehicles traversing them, we shall see that the prediction of the Maryland judge may soon come true, and a new ground for the exercise of the police power may be established, namely, the protection of the architectural symmetry of our cities.

### READING'S SPRINKLING FILTER

As described in our issue of November 6, 1907, the sewage of the city of Reading, Pa., has for some months been purified by a sprinkling filter one acre in area. This filter was estimated to be capable of delivering a non-putrescible effluent at the rate of  $2\frac{1}{2}$  million gallons a day. Recent extensions of the sewer system have increased the sewage beyond this amount, and it was seen some months ago that additional provision for purification would at once be necessary. As stated in our article, the plant at Reading was built and is owned by a private contractor, who receives a certain annual sum for purifying the sewage. Unfortunately his contract did not require him to treat any greater amount of sewage than  $2\frac{1}{2}$  million gallons before the summer of 1911; and as he objected to building an additional unit before it is called for by the contract, the city was compelled to do so and has now completed another one-acre sprinkling filter, which will probably go into service about the time of publication of this paper.

The new filter is similar in all essentials to the old, although there are several differences in details of construction. Where the old filter was retained by dry walls, the new one is provided with concrete walls. There is also a court running through the center of the new filter. Sixteen pipes which feed the sprinklers branch out from each side of this court at equal intervals, and each is provided with a valve so that the bed may practically be treated as consisting of 32 units. Some slight changes were made in the sprinkler heads also.

The original filter went into service on January 23 of last year. At first the bacterial results were poor, but in April they became much more satisfactory. At no time has the effluent been putrescible. The results as to the removal of bacteria and oxidation of organic matter have been quite irregular, however, as is shown by the table presented herewith. The plant was out of service for several days at a time during the winter, once for certain minor repairs and again to allow pipe connections with the new filter. Until the end of July analyses were made at the city hall, some time being consumed in carrying the samples to that point from the plant. Since then analyses have been made in a special laboratory at the plant, and the results have demonstrated that this plan is much preferable, giving more correct and generally more favorable results.

This filter and the one at Columbus have shown that there is considerable odor and nuisance occasioned by the spraying of the sewage; although at the ten-acre plant at Columbus, O., this is not noticeable more than eight or nine hundred feet from the plant. It has been found also that the upper layers of the filters abound with flies, which develop there in large quantities. At Reading it was found last summer that these apparently did not travel more than five or six hundred feet from the filter. They are not the ordinary house fly, but a small white fly which is not known to be an agent in the spreading of disease. How-

ever, on account of both of these objectionable features it is believed by Mr. Geo. W. Fuller (of Hering and Fuller, the engineers of the plant), that such filters should be removed at least an eighth or a quarter of a mile from the nearest house or road.

As to the cost of maintenance, this is very low indeed; at Reading one man finding it difficult to keep himself occupied at the plant. Experience seems to indicate that, as far as keeping the nozzles clean and properly operating is concerned, one man could attend to ten acres of sprinkling filters. It should be borne in mind, however, that the sewage at Reading is screened with unusual thoroughness; it probably contains less suspended matter than any other screened sewage in the country, owing to the unusual efficiency of the screening methods employed. With less complete removal of suspended matter it seems quite probable that more difficulty would be found in keeping the sprinklers clean, and the expense of this would be consequently greater.

### REMOVING IRON FROM WATER AT DOVER, N. H.

The triple water supply of Dover, N. H., was described in our issue of April 20, 1908, and the reason for, and temporary method employed in, removing iron from the ground water supply. Last year a permanent iron removal plant was installed according to the plans of Wm. S. Johnson, who reported that it would be more expensive to treat the ground water for iron before it united with the spring water in the main than to treat both of them at a lower point; and the latter plan was accordingly adopted. The water passes through an aerating device consisting of a steel pan 7 feet wide and  $7\frac{1}{2}$  feet long, the bottom of which is perforated with about 7,200  $\frac{1}{8}$ -inch holes which are spaced about one inch apart. The untreated water rises into this pan through a pipe in the bottom and falls through the small holes as spray to the water about 36 inches beneath. From here it passes to a concrete settling basin which is 53 feet long and 39 feet 4 inches wide and about 8 feet deep, giving a total capacity of about 125,000 gallons, and is covered with a concrete roof on which is two feet of earth. About  $3\frac{1}{2}$  hours will ordinarily be consumed by the water in passing through this basin. A waste pipe has been provided in the bottom of the basin through which the iron oxide which accumulates there can be flushed into the brook.

From the settling basin the water passes to two sand filters, each 94 feet square, or about 0.2 acre in area. These are in concrete masonry structures with groined arch roofs. The filtering material consists of  $3\frac{1}{2}$  feet of sand, above under drains of split tile pipe, which drains are surrounded by gravel of varying sizes. A depth of four feet of water above the sand is maintained by a float valve which regulates the flow of water through the aerator.

Monthly Summary of Results of Operation of Reading Sewage Purification Works

MONTH	Sewage Filtered, Million Gallons Daily	Area of Filter in Service, Acres	PARTS PER MILLION									PUTRESCIBILITY OF THE SETTLING BASIN EFFLUENT		BACTERIA					
			SUSPENDED MATTER			OXYGEN CONSUMED			NITROGEN AS NITRATES		Dis- solv'd Ox'gen			MILLIONS PER CUBIC CENTIMETER				PER CENT REMOVED	
			Screened Sewage	Filter In-fluent	Settling Basin Efflu't	Screened Sewage	Filter In-fluent	Settling Basin Efflu't	Filter Effluent	Settling Basin Efflu't		Settling Basin Efflu't	Undiluted	Diluted 1 to 1	Screened Sewage	Filter Influent	Filter Effluent	Settling Basin Efflu't	Entire System
1908																			
February...	3.0	1	129	37	15	39	24	17	1.7	1.9	....	0	0	1.7	2.00	1.10	1.20	29	40
March.....	2.5	1	103	25	12	47	30	21	2.4	2.4	....	0	0	2.0	1.30	0.80	0.90	55	31
April.....	1.9	1	136	23	11	49	24	13	2.6	2.7	4.6	0	0	4.3	1.75	0.45	0.55	89	69
May.....	1.5	1	211	22	13	65	24	14	3.7	3.9	5.0	0	0	7.5	1.90	0.75	0.65	91	66
June.....	1.4	1	185	23	16	54	24	13	4.9	5.3	4.7	0	0	5.5	2.00	0.80	0.85	85	58
July.....	1.6	1	297	26	15	71	28	15	5.1	5.6	5.1	0	0	6.8	2.10	1.10	1.00	85	52
August.....	2.4	1	287	52	23	82	30	19	5.3	5.5	6.5	0	0	3.7	1.00	0.30	0.35	91	65
September...	2.5	$\frac{3}{4}$	183	63	21	67	27	13	....	5.9	5.6	0	0	1.9	0.75	....	0.20	90	74
October.....	2.3	$\frac{3}{4}$	125	64	31	56	25	15	6.2	6.5	6.4	0	0	2.0	0.95	0.35	0.20	90	79
November...	2.4	$\frac{3}{4}$	100	50	23	51	25	13	6.7	....	....	0	0	1.4	1.00	0.15	....	89	85
December...	2.2	$\frac{3}{4}$	125	55	24	55	28	13	6.7	6.6	8.7	0	0	1.4	1.80	0.30	0.35	76	81
1909																			
January.....	2.0	$\frac{7}{8}$	140	55	26	55	27	13	....	5.4	8.6	0	0	1.4	2.40	....	0.55	61	77
February...	1.5	1	130	53	26	55	24	13	....	6.2	8.8	0	0	1.3	2.80	....	1.10	15	61
March.....	1.4	1	160	55	23	54	25	13	....	6.9	7.5	0	0	1.9	3.50	....	0.80	57	77



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NEW YORK, JULY 7, 1909.

## CONTENTS

Sterilizing Water at Boonton (Illustrated).....	1
Holland Water Works Report.....	5
Purchase of Coal by Heat Units. By E. W. Bemis.....	6
A Defective Water Tower (Illustrated).....	7
Bids for City Waste Destructors. By W. F. Morse.....	8
Storage of River Water.....	9
Cleaning Brooklyn Water Mains (Illustrated).....	9
Oak Park Incinerating Plant (Illustrated).....	11
Water Works at Paris, Ill.....	12
Sewerage Maintenance in Somerville.....	12
Emscher Sewage Tanks (Illustrated).....	13
Prices for Pipe Sewers.....	14
Tarring Roads in Norristown.....	14
Æsthetics and Police Power. By John Simpson.....	15
Reading's Sprinkling Filter.....	16
Removing Iron from Water at Dover, N. H.....	16
Unjust Criticism.....	17
Bids for Refuse Incinerators.....	17
Duluth's Water and Light Plants.....	18
An Anti-Fly Ordinance.....	18
The Commission Idea.....	18
Street Culverts.....	18
News of the Municipalities (Illustrated).....	19
Legal News—A Summary and Notes of Recent Decisions.....	26
The Municipal Index.....	28
News of the Societies.....	32
Personals.....	33
The Week's Contract News.....	34
Patent Claims.....	52
Incorporations.....	52
Municipal Appliances (Illustrated).....	54
Trade Notes.....	54

## Unjust Criticism

IN the July number of a popular magazine is a characteristic arraignment of New York's administration by a writer who has probably done much good by informing the public concerning graft and official laxness in many quarters. But, like most of the professional writers on this subject, he lacks knowledge and discrimination, and denounces certain expenditures as extravagant and useless because he is not sufficiently informed to understand their use. In the article referred to, the author lays great stress on two extravagances, both connected with the city's water supply. He thinks it necessary only to mention the fact that the city meters the water supplied to the municipal buildings, to prove that there is either graft or gross extravagance in the purchase of meters. It is so absurd that a city should pay out money for measuring the water which it gives itself! It is equally absurd for a merchant to pay a large sum for a cash register to tell him how much money he takes in, when he counts it in the cash drawer at the end of every day in any event. Readers of this paper are too familiar with the excellent reasons for measuring the water used for all purposes, municipal as well as commercial, to be misled by such statements. But the crowning infamy of New York's recent administration is the building of the new water supply system. Millions are to be spent for an entirely new supply, when water runs to waste over the Croton dam! His information on this subject is apparently confined to a photograph showing such waste. He does not know that this has occurred but twice in four years, and that the total amount so wasted would not add five per cent to the supply if stored; and that this storage would require the expenditure of some millions of dollars, and would not postpone for more than two years the necessity for the new supply. Such absolute ignorance and misrepresentation on these points discredit all which the writer has to say; and lead to two unfortunate results: Readers equally uninformed are persuaded that engineers of high standing conspire to rob the public by making false reports, and that all officials are corrupt; and the officials become reckless and careless of public opinion when they find their best and wisest acts so misrepresented. There is altogether too much graft and extravagance among the officials in many municipalities; but there is equal extravagance in the writings of the muck-rake authors, and graft is little more dishonorable than the pay they receive for their half-slanders.

## Bids for Refuse Incinerators

ATTENTION is called in another column to the great variety found in bids for refuse incinerators, not so much in the nature of the plants as in the prices asked; variations of two hundred to five hundred per cent being common. This is taken by the author to indicate uncertainty as to what the city wants (or can be persuaded to buy) rather than inability of the bidders to figure closely on building plants of known construction. But unaccountable differences in bids are found for other classes of work where the conditions are more easily ascertainable. For example, in the bids, published by us last week, for furnishing and laying water mains and appurtenances in New York City prices for 20-inch valves ranged from \$6.19 to \$30; bluestone flag from 5 cents to \$1.50 per square yard; 4-inch pipe from 25 cents to \$2 per foot; and any engineer can cite instances of even greater differences. We doubt whether a more scientific method of presenting a city's needs will result in securing more uniform bids than are received for other classes of work.

But such a method should secure even more important benefits, for it should give the city more nearly what it needs. According to present methods it wants its garbage destroyed and asks builders of plants to tell it how this can be done; and the most persuasive talker sells his plant. Under no rational system of bidding should the highest of many bids be accepted, but so long as bidders are uncertain whether a city wants the best plant or the cheapest, present conditions will exist, and but one or two bids will be received on what it does want, the balance being on what it does not, and hence being of no benefit to it.

### DULUTH'S WATER AND LIGHT PLANTS

THE municipal water and light plants of the city of Duluth, Minn., have been operated for a few months over ten years under the charge of a board of five commissioners. The tenth annual report, dated January 2, 1909, gives a summary of the finances of the Department for these ten years, which apparently indicates that the plants have been a profitable investment. During 1908 the earnings of the plants exceeded the cost of operation, maintenance and interest on bonds by \$104,644.35. The surplus has been rapidly increasing during the past few years, having been about \$27,000 in 1905, \$48,000 in 1906 and \$87,000 in 1907. At the time of purchasing the plants there were 53 miles of water mains and 29 of gas mains; which have increased to 101 miles of the former and 84 of the latter. The amount of gas sold in 1898 was 20,000,000 feet, and in 1908 212,000,000. The amount of water pumped in 1898 was 4,000,000 gallons per day and in 1908 5,281,000. The amount of water sold, however, has increased 300 per cent, and the difference between that and the 42 per cent increased pumpage indicates reduction in waste and leakage, which has largely been effected by substituting iron for the old kalomine pipes. Water meters have increased in number from 941 to 3,333.

The amount of bonds issued for the purpose of extending and improving the plants is \$625,000, and \$360,000 has been paid for new construction and improvements out of the earnings of the Department. The original purchase price of the plants was \$1,027,000.

While thus meeting the expenses and cost of extensions, the Department has reduced the rates. The cost of gas for lighting ten years ago was \$1.90, as against 75 cents now, and the cost for fuel, which was then \$1.00, is now 50 cents. The water rates, both meter and flat, have been reduced an aggregate of 50 per cent; being now 17½ cts. per 100 cu. ft., meter rate. It is estimated that the reduction in gas rates has effected a saving to the city of over \$631,000; that in the water rates, a saving of \$844,000; which, with other reductions, with the \$360,000 spent in extensions and with interest on the supplementary system totaled \$2,307,778. On the other hand, the Department has received in the tax levy \$113,757.58. The amount which would have been paid in taxes on the plant by a private company is about \$169,000. Assuming \$30,000 as the possible water rates of the company voided, this leaves a net profit to the city of \$1,995,000.

### AN ANTI-FLY ORDINANCE

At the convention of the Indiana Municipal League, reported in our issue of June 30, Dr. J. M. Hurty, of the State Board of Health, presented a draft of an ordinance which he urged be adopted by all the cities of the State, as being an important step toward the elimination of all infectious diseases. The proposed ordinance is as follows:

Section I. Be it ordained by the Mayor and Common Council of ..... that it shall be unlawful for any person, firm or corporation to suffer or permit or have upon their premises, whether owned or leased by them, any one or more of the following unsanitary fly-producing, disease-causing conditions, to wit:

- (1) Animal manure in any quantity which is not securely protected from flies.
- (2) Privies, vaults, cesspools, pits or like places, which are not securely protected from flies.
- (3) Garbage in any quantity which is not securely protected from flies.
- (4) Trash, litter, rags or anything whatsoever in which flies may breed or multiply.

Section II. It shall be the duty of the marshal, police and health officers, upon learning in any way whatsoever, of the existence of one or more of the unlawful conditions described in Section I of this ordinance to notify the offender in writing, upon order blanks provided by the city clerk, to remove or abate said unlawful conditions stating the shortest reasonable time for such removal or abatement. In the event of the refusal or neglect on the part of the notified offender to obey such order, the marshal, police or health officer shall inform the street commissioner upon a blank provided by the city clerk, and it shall then be the duty of said street commissioner and he shall have power and authority, to remove and abate the reported unlawful conditions, and he shall keep an accurate account of the cost and expenses thereof, which shall be paid from the city treasury upon the sworn vouchers of the street commissioner, and said cost and expenses shall be a lien upon the property and shall be collected by law as taxes are collected and duly paid into the city treasury.

Section III. Any person, firm or corporation found guilty of having created or suffered to exist on premises either owned or

leased by them any one or more of the unlawful conditions named in Section I of this ordinance shall be punished by a fine of not less than five nor more than fifty dollars.

Section IV. All ordinances or parts of ordinances in conflict with this ordinance are hereby repealed; and whereas an emergency exists, this ordinance shall be in effect upon and immediately after passage.

### THE COMMISSION IDEA

Editor MUNICIPAL JOURNAL AND ENGINEER,  
New York City.

DEAR SIR:—In Mr. Bradford's article in the June 23d issue of your paper on "The Spread of the Commission Idea," is at least one misstatement and an unfortunate illustration. He says that Portland, Ore., "has just recently voted favorably on the proposition" of commission government. A few days before this article was printed the Portland papers announced that the proposition had been voted down by a vote of almost three to one.

Further down on the same page he says: "In Galveston a strong Civic Club, composed of public-spirited business men, backs for re-election the Commissioners who have given satisfaction." Apparently every one was not satisfied, for, in spite of this backing, the Commission was defeated at the recent election and the anti-commission party won. And this in the home of the first commission.

Which seems to look as though Mr. Bradford were not unbiased on this subject.

Respectfully,

D.

### STREET CULVERTS

Editor MUNICIPAL JOURNAL AND ENGINEER,  
239 West Thirty-ninth Street,  
New York City.

DEAR SIR: I desire to learn the best practice in the matter of street culverts on paved streets, at points where it is not desirable to place valley gutters and where it is impracticable (for the time being at least) to connect with storm sewers.

I have, in some instances (where the grades on intersecting streets permit), carried short sections of sewer across the street, equipped with regular inlets and emptying into the gutter below; but I find it a hard problem to build a serviceable and slightly outlet. Where it is not possible to follow this plan we have had recourse to culverts with stone or concrete walls and cast-iron cover plates, but I find the cast-iron objectionable, not only on account of cost but also because horses are very apt to slip upon it. In one or two instances I have lowered the elevation of the cover plates and carried the regular street surface across upon them, but this is very costly and is not always practicable on account of lack of head room in the culverts.

I would like to learn what other city engineers do in such instances.

N.

At intersections where the grade of the street is not too flat, a practice followed in a number of cities with fair satisfaction is to use cast-iron water pipe (seconds or pipe having cracks or other defects may be used), this being entirely buried so that the outside top is at least 2 inches below the level of the crown of the street; 8-inch pipe being a serviceable size. This brings the bottom of the pipe practically 11 inches below the street surface, which is about 5 inches deeper than the gutter is ordinarily placed. To compensate for this the slope of the pipe and of the gutter for, say, 50 feet below it is made flatter than the average grade. If this is about 1 per cent, this means that the grade of the pipe and of this section of gutter is about ¼ per cent. Above the upper end of the pipe the gutter is given a steeper grade for, say, 25 feet. On streets of very flat grade this method is difficult, unless the height of the crown above the gutter along the street in question be made at least 10 inches. If the macadam is well packed around the pipe with a good binder, little difficulty is experienced in holding it in place above and in the vicinity of said pipe. It suggests itself that an artificial binder, either asphaltic or of Portland cement, might be used at this point to possible advantage. An objection to such pipe culverts is the difficulty of removing from them deposits of sediment and ice.

We would very much like to have city engineers generally send us descriptions of the methods employed by them and the degree of satisfaction given, or to communicate any information which they may have upon this subject.



## NEWS OF THE MUNICIPALITIES

Current Subjects of General Interest, Under Consideration by City Councils and Department Heads—Streets, Water Works, Lighting and Sanitary Matters—Police and Fire Items—Government and Finance

## ROADS AND PAVEMENTS

## New Highway from Faulty State Road

Albany, N. Y.—Attorney-General O'Malley has given an opinion to the State Highway Commission, holding that the fact that a highway has been improved as a State road does not prevent the work being done over again on a petition of a County Board of Supervisors, the same as if the road had never been improved at all. Erie County wanted such information relative to a road which was faultily constructed.

## Aldermen Want Old Street Names

Baltimore, Md.—That Mayor J. Barry Mahool should veto the ordinance being passed by the City Council to change the names of streets is the opinion held by every department in the City Hall, which for the last 15 years has been troubled by the perplexing duplication and triplication of street names. A complete revision of street names was made last spring by Judge William H. Brune of the Appeal Tax Court, and the value of this work, which cost between \$1,000 and \$1,500, has just begun to be realized, when the Councilmen come with measures that completely disregard the work done by Judge Brune. Three such ordinances have been introduced in the First Branch, and from present indications unless a check is put upon the practice a year hence will find the city in the same confusion. The persistence of the Councilmen in ignoring the revision is thought to be due to the fact that they regard street names in their respective wards as matters of local interest only, forgetting the fact that duplications are reflected in a certain amount of confusion on the tax books of the city and in difficulty in handling the mails.

## Houses Found to Encroach on Street

Elgin, Ill.—The City Engineer has found that Dundee street is not according to the map, but that it has been laid out wrong and that all of the property on the east side of the thoroughfare is encroaching on the street from 10 inches to 4 feet. There has been an effort on the part of the city to compel the owners who are said to be the greatest trespassers to give up part of the strip in dispute, but they are protesting that their deeds call for the land they are occupying and that they have occupied it many years. Several residents have put down concrete gutters, and the city has dug them up and will replace them at a different grade at the expense of the property owners. The same fate awaits the curbing put in last fall for several blocks, some of it by advice of the city.

## Brick Paving at Stamford

Stamford, Tex.—Work has commenced on the second instalment of the brick paving, and at this time there will be eight blocks paved. This will consume the second bond issue for street paving and will give Stamford a total of 12 blocks of paving. The longest stretch of paving is from the public square to the Union Station, a distance of more than six blocks, and will give a splendid appearance to the town. At this time Stamford has more street paving than any town in the region between Fort Worth and El Paso, and holds the record, considering her age and size.

## Road Drag Parade

Sturgeon, Mo.—A road drag parade half a mile in length attracted a crowd of people to Sturgeon the other day, and undoubtedly converted many who will take up the work in the future. The parade was headed by the Sturgeon Band. In carriages were the officers of the Brotherhood of Road Draggers, and then followed the drags, which were furnished by the farmers living near town. At the end of the procession an automobile owned by G. A. Pollard carried a drag, and this feature was liberally applauded along the line of march. Sturgeon is trying to sustain her reputation of having the best dirt roads of any city in the State, and the road drag is doing the work.

## Will Make Avenue Alongside New Channel

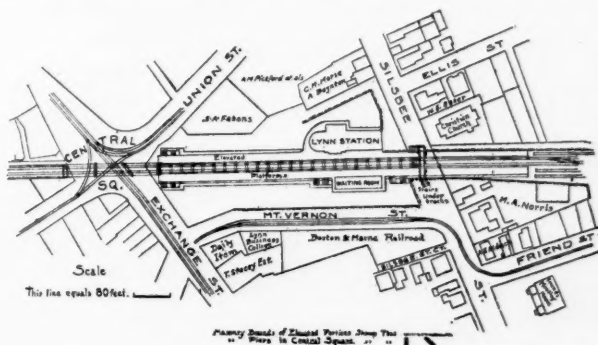
Philadelphia, Pa.—Director John C. Grady of the Dock Department has taken the first step toward carrying out Mayor J. E. Reyburn's plan of laying out a broad avenue, to be known as Commercial avenue, along the Delaware River between the Greenwich coal piers and the eastern end of the back channel along what is known as the waste lands, by entering into negotiations for the purchase of the land. The proposed opening up of the broad avenue, which will be considerably over a mile in length, comes as the result of the announced intention of the Government to improve the back channel. Commercial avenue will be a continuation of Government avenue, which exists on the paper plan of the marsh land in the southern section of the city, and extends from Broad street east along the back channel. The Government intends making a ship basin out of the eastern end of the channel, similar to the one at the western end, and also to improve Government avenue, which will be 150 feet in width. The Commercial avenue project will cost about \$400,000, of which the greater portion has already been authorized under an "improvement of waste lands" clause in city ordinances. The first step in its construction will be the driving of two lines of piling for the 250-foot width of the proposed avenue along the bulkhead line designated by the War Department. The two lines of piling will then be filled in with the dredgings taken up in river work.

## Wall Along Boulevard to Save \$5,000 Annually

Pittsburg, Pa.—The natural wall of the hillside along Grant boulevard is rapidly decaying and giving way, and with a view of preventing the dislodgement of huge stones and a slide of a great mass of earth, employees of the Bureau of Highways and Sewers are working in large numbers. That a serious accident has not resulted from tumbling rocks or the falling of part of the hillside is regarded as marvelous by persons who traverse the million-dollar driveway daily. An item will be placed in the estimates for building a concrete wall at a cost of \$100,000. The annual expense of keeping the hillside clear is \$5,000.

## Grade Separation at Lynn

Lynn, Mass.—The accompanying plan shows details of grade separation work decided upon by the special commission for grade crossings. In three or four years the work will be completed, and the Boston & Maine express trains will travel at an elevation of 18 feet above the present grade crossings. A truss steel bridge will carry the railroad across Central Square, the abutments affording as little obstruction to the view of teamsters as possible. A plank floor, grooved and splined, will be laid under the tracks to deaden the sound. Access to the new station from Central Square will be by stairs and a ramp. Access from Silsbee street will be by stairs or ramps. The present station will be raised and a story built under it. A white tiled subway will allow passengers to go from one side of the station to the other at Silsbee street.



ELIMINATION OF GRADE CROSSINGS, LYNN, MASS.



## SEWERAGE AND SANITATION

### Peculiar Sewerage Problem

Rochester, N. Y.—A certain property owner has four lots that are divided by the city line. These lots extend between Nursery street, which is in the city, and Hilldale avenue, which lies in the town of Brighton. He is erecting four houses that face on Hilldale avenue, in Brighton, and all the houses are in that town. But he will be assessed on the frontage of his lots on Nursery street, through which the sewer runs. One of his lots extends to Nursery street, 40 feet into the city; the second extends 30 feet, the third 20 feet and the fourth 10 feet. But all of them front on a city street, and must be assessed for the city sewer. If the property owner is denied permission to connect with the city sewer in Nursery street, because his houses on the lots facing Nursery street are located outside the city, the peculiar hardship will be presented of requiring a man to pay for a sewer which he is not permitted to use. The present Council majority has established the precedent of refusing sewer and water privileges to property owners outside the city, but it is a question whether this case comes within the Council rule.

### To Hunt for Surface Water Inlets to Sanitary System

Geneva, N. Y.—The Board of Health has appointed Grove R. Watson, Assistant Superintendent of the Board of Public Works, as a deputy of the Health Department for the purpose of making a record of all places where surface water finds its way into the sanitary sewer system, and empowered him to enter all buildings in the city where it might be necessary for him to go in his efforts to trace out the places where surface water is being allowed to enter the sanitary sewer system. For years the Board of Public Works has been bothered by complaints made against the sewer system. In certain places, following a heavy rain, the water backs up and overflows cellars, and in some places the water has even backed up through the manholes. The officials are convinced that the sewer system is amply large enough to care for all the sewage of the city and are confident that the overflowing of the system is due to the draining of surface water into the sewers. A city ordinance prevents this practice, but many of the drains were put in before the ordinance was adopted and the officials have never been able to definitely locate them. It is with the intention of tracing out all of these drains and compelling the property owners to change them that the action of the Board was taken.

### To Rid Kearny Meadows of Mosquitos

Kearny, N. J.—Mosquitos will have to leave the Kearny Meadows. They are to be drowned out, and the localities which have suffered from the pests for years will rise up and bless those who have a hand in their extermination. A few days ago John B. Smith, State Entomologist; John H. Brehme, Inspector of the Newark Board of Health; Dr. J. B. Thompson, of the Kearny Board; Mr. Delaney, of the Jersey City Board of Health, and Mr. Feeley, who is connected with the Hackensack Meadows Land Company, met on the meadows and had a long discussion on methods to do away with the obnoxious insects. Mr. Smith said he believed the only way to get rid of the pests was to flood the meadows. This, he explained, would clean out the ditches and remove the larvæ, while the constant flow of water from the Passaic River would prevent any further breeding. The meadows are owned by the Hackensack concern, and Mr. Feeley said the company would have no hesitancy in doing that work, to relieve conditions in West Hudson and Hudson counties. The flooding will be commenced at once.

### Dallas Adopts Pure Food Law

Dallas, Tex.—By an ordinance passed through all its readings, the State pure food law was adopted as the basis for the city work, and City Chemist Dr. Landon C. Moore was empowered to make inspections and to prosecute non-compliance. His work under State law will be prosecuted in the City Court. The effect of the law is immediate, upon the enrolling and signing.

### Kansas to Have Sanitary Exhibit

Lawrence, Kan.—For the next two years Kansas will spend \$10,000 a year for the education of its people in matters of sanitation and hygiene. Particular attention will be paid to waging war on tuberculosis, but all dangerous and infectious diseases will be the object of special investigation and instruction. The work will be in charge of Dr. S. C. Emley, of the medical faculty of the University of Kansas, under the direction of the State Board of Health. For the next two years Dr. Emley will lecture and show a sanitary exhibit at all towns in the State which make application for the services of the Board of Health's lecturer. Dr. Emley and Dr. Crumbine have been at work for two months getting ready the exhibit, which will take the road August 1. The equipment will cost about \$1,000. It will include an expensive stereopticon with hundreds of picture slides, a model sleeping room and a model dairy, besides numerous instructive pamphlets and charts showing the rate of mortality from various diseases. A feature of the lectures will be lantern slides showing views of Kansas towns in their best and worst aspects. Pictures of the cleanest towns of the State will be thrown on the screen side by side, with views of the most squalid sections, and the weed patches which disfigure the hearts of numerous good towns of the State will be shown. In the larger towns the exhibit will remain a week and lectures will be given every afternoon and evening. One-day stops will be made in the smaller towns.

### Purifying Louisville Milk Supply

Louisville, Ky.—Section No. 36 of the new milk ordinance is being put into operation as rapidly as possible, and the result will be that within a week consumers will be able to tell at once from whom their dealers obtain the milk exposed by them for sale. The section referred to provides that each milk dealer shall publish on a placard sign to be furnished by the Health Office the names of all producers from whom he obtains his milk. This section operates in dovetail fashion with the provision which enjoins the Health Office to make public each month the findings connected with every sample of milk examined. By referring to the placards mentioned consumers will be able to know just the sort of milk they are about to buy.

### Medical School Inspectors Hunt Flies During Vacation

Buffalo, N. Y.—With the close of the school year the five Medical School Examiners employed by the city find themselves without any duties to perform, but whatever visions they may have had of a pleasant summer vacation with pay and without work are shattered by the plans of Acting Health Commissioner Fronczak. Barns and manure piles, affording breeding places for flies, are to receive especial attention this year and the regular force of inspectors will be augmented by the five Medical School Examiners and every barn and refuse heap in the city will receive attention.

### Bursting Sewer Wrecks Dry Dock

New York, N. Y.—Bursting of a six-foot sewer pipe at the head of Dry Dock No. 4, under construction in the New York Navy Yard, following a heavy rain flooded the big excavation. It has damaged construction work to an extent that cannot be estimated until the water is pumped out, and has caused another serious setback in work that has already led two contracting firms to give up the job. Breaking of the sewer pipe caused the breaking of a suction pipe used to convey salt water to the condenser in the Navy Yard power plant, with the result that the plant has to use atmospheric condensation.

### Clogged Sewer Causes Gas Explosion

Memphis, Tenn.—After divers had failed to clean out the Auction avenue sewer where it empties into Wolf River, at the suggestion of Dr. Andrews of the Board of Health, 25 pounds of caustic soda were administered with successful results. Since the building of the North Memphis levee system, with each high water the main becomes congested. This sewer has always been the cause of considerable anxiety to the City Engineering Department. A short time ago an explosion of gas in the sewer in Maiden Lane blew out three manholes and did other damage, such as breaking windows. The iron manhole cups were broken in many pieces.

## UNPOLLUTED RIVERS FOR SIX COUNTIES

### Fish Commissioner Meehan of Pennsylvania Brings Factory Owners to Terms—Result of New Law

Harrisburg, Pa.—Through cooperation with heads of tanneries, saw mills, gas plants, chemical works and such establishments that are in the habit of converting the State's streams into sewers, William E. Meehan, State Fish Commissioner, has succeeded in stopping stream pollution in a half dozen counties and has made a big advance in the movement to keep the running water pure. This has been accomplished without a suit. Agreements have been reached between the Commissioner and the proprietors of the offending plants, and in many instances Mr. Meehan has been promised the future aid of the men with whom he has dealt in furthering the "clean stream campaign." Extensive powers are placed in the hands of the Department of Fisheries by the new State fish law with regard to this practice of dumping harmful substances into the streams. It prohibits "any deleterious or poisonous substances of any kind or character to be turned into or allowed to run, flow or wash or to be emptied into any of the waters" within the boundaries of the State. The penalty is \$100 fine for each offense, with a prison alternative. Thus armed, Commissioner Meehan has stopped between 60 and 70 saw mills, 15 chemical plants and 30 other industrial establishments from emptying refuse into streams. "By the end of the year," said Commissioner Meehan, "the pollution will be almost wholly cleared up in Warren, Chester, Montgomery, McKean and Clarion counties." The Department of Fisheries and the Department of Health, under Dr. Samuel G. Dixon, are working jointly to put an end to the water pollution and a number of conferences have been arranged with both tannery owners and others during July. Counties suffering most from pollution now are Westmoreland, Potter, Clinton and Tioga and others in the coal region.

### Filter Plant Reduces Typhoid

Philadelphia, Pa.—Pure water supplied by the filtration systems of the city has been a most effective agency in the reduction of the number of typhoid fever cases, as indicated by a comparison made of the health reports of the first six months of this year and those of 1908. This shows a reduction from 2,195 cases to 1,358, a decrease of 837. A portion of the old Queen Lane district, which includes some of the northwest wards, is being supplied with about 15,000,000 gallons of raw water daily, this amount representing the actual deficiency in the capacity of the present filtration system to supply the total daily consumption of water in the entire city. One of the peculiar features of the weekly typhoid fever report last made was that of the 17 new cases reported in the whole city none came from the wards receiving raw water.

## WATER SUPPLY

### Consulting Engineers to Recommend Warren Site

Baltimore, Md.—It is stated, unofficially, that the advisory engineers will report in favor of building the impounding reservoir in the Gun Powder Valley, with the dam at Loch Raven, using the property of the Warren Manufacturing Company, for which the Water Board made an agreement to pay \$725,000. A reservoir of 40,000,000 gallons instead of 20,000,000 will probably be recommended. Litigation is likely to follow regarding the sum to be paid the Warren company, as the City Council investigating committee placed its value at \$350,000.

### Wants Reduction in Meter Rates for Dirty Water

Scranton, Pa.—Councilman W. H. Szynter has introduced in Council a measure which recites that, whereas, some of the water furnished to consumers by the Scranton Gas and Water Company is frequently dirty and unfit for household use, and whereas, the consumer, under the new meter arrangement, has to pay for all the water, whether good or bad, therefore be it resolved, that the Mayor and a committee from Councils devise some plan whereby the consumer will not have to pay for the aforesaid "dirty" and "unfit" portion of the water.

## Heavy Rains Cause Shortage of Water

Baltimore, Md.—One-fifth of the population of Baltimore is in serious danger of a water famine. Owing to the heavy rains during June, the Water Department has for the last week been compelled to shut off the muddy Jones' Falls supply, which furnished water to 150,000 people living in the middle service—a territory lying in a diagonal belt one mile wide, running from the northeastern section of the city to the southwestern. In this crippled condition, the Department is having an extremely hard time keeping up the supply to meet the extraordinary demands of the last few hot days. Druid Lake, which is ordinarily supplied from the Jones' Falls source, is 13 feet below its usual surface, despite the fact that every available reserve pump in the water system of the city is working under extra heavy pressure to keep up the water in the lake.

### Favors Autos for Work

Boston, Mass.—Water Commissioner William E. Hannan has announced his determination of substituting as far as possible automobiles in the Water Department to replace all the horses and wagons in the repair and waste divisions of the Department. The Commissioner made the announcement after testing his new emergency auto car, purchased for \$2,000, for quick-service work in the Water Department. The new car, which resembles, to some extent, an auto patrol car, is arranged so that it may take a crew of men to the scene of any trouble in short order. By installing similar cars in different sections of the city, Commissioner Hannan believes much valuable time and water can be saved.

### Finds Abundant Water After Drilling Third Well

Conemaugh, Pa.—After driving one hole to a depth of over 600 feet and another half that distance during the past year in a vain search for a plentiful supply of water, the Conemaugh and Franklin Water Company several days ago, in a third hole at a depth of 212 feet, struck what is probably the strongest gusher in this vicinity. The supply has not yet been tested to the limit, as the company has no pump strong enough to reduce the flow, but a preliminary test conducted shows that it has a capacity of over 100,000 gallons in 24 hours. With such a supply during the dry months of the summer and fall the company will be enabled to give its patrons all the water needed and water famines will be a thing of the past in Conemaugh and Franklin.

### Water Inspectors Will Make Complete Canvass

Dallas, Tex.—Five inspectors have begun work to ascertain the condition of the water connections in the business section of the city. They are authorized by the Mayor to enter every building of any class in which there is water connection, to inspect the condition of these connections, to recommend to the owners of the buildings any repairs that may be necessary, and to make a similar report to the Secretary-Collector of the Water Department of the city, Richard R. Nelms. Later on, as soon as the good effect of the rains shall have passed to the extent of making street and lawn sprinkling a necessity, seven more inspectors are to be added, making 12 in all, to inspect the entire water connections of the city, every house of every sort being visited and inspected. This privilege is to be allowed them at any reasonable hour of the day. Any leak, any unlawful use of the water, any irregularity in the equipment, will be called to the attention of the house owners and reported as well to the Secretary-Collector. Later a visit will be made to see to it that the suggestions are carried out. This is a part of the plan to reduce the water consumption of the city to reasonable limits. The daily consumption for several days exceeded the pumping capacity of the city, and the consequent ill effect is noted at times in the low pressure in the mains.

### Fire Threatens Water Supply

Pekin, Ill.—Fire that partially destroyed the pumping plant of the Pekin Water Works Company threatened for a while to shut off the water supply of the city, but after a hard fight, with no direct pressure on the streams, the firemen managed to subdue the flames after most of the roof of the building had been burned away. The water supply had been saved, though somewhat crippled.



## STREET LIGHTING AND POWER

### Would Teach Children to Avoid Wires

Chicago, Ill.—City Electrician William Carroll has written a letter to O. C. Schneider, President of the Board of Education, suggesting that all school children be drilled in the danger of touching electric wires. So many accidents have been caused to mischievous boys by pranks of this description that Mr. Carroll believes that children should be taught to avoid wires of all kinds as they would venomous serpents.

### Plan Presented to Prevent Electrolysis

Dayton, O.—To prevent deterioration of water and gas pipes by electrolysis, E. E. Bonnell has submitted a plan to the Board of Public Service to install copper wires along these pipes leading to the power stations of the electric railway companies. This will save power for the companies as well as preserve the pipes. The matter will be brought to the attention of the Boards of Directors of the various companies interested.

### Indianapolis Gas Company Enjoins City

Indianapolis, Ind.—The Indianapolis Gas Company has filed an injunction suit in the Federal Court to prevent the city from enforcing the 60-cent gas law, claiming that its enforcement will deprive it of property without due process of law. In order to succeed in its suit Corporation Counsel Matson says that the company must first establish affirmatively that it has an existing franchise to maintain pipes in the public streets. This it must do before attacking the constitutionality of the act of 1907. The company claims to have a perpetual franchise granted in 1876. In 1897 the company entered into a contract with the city to furnish gas at 90 cents and \$1. This contract expired July 5.

### Gas Company Makes Proposition to Minneapolis

Minneapolis, Minn.—The Minneapolis Gas Light Company has offered to reduce its rate from \$1 to 90 cents to private consumers and from 90 to 80 cents to the city for street lighting if the city will relinquish its right to purchase the plant in 1910. The company also offers to furnish free gas to 2,112 street lights ordered in since January 1, 1909, and free gas for 300 additional lamps each year for a 20-year period, making a total of 8,112 free lights at the expiration of the franchise in 1930. The city is asked to reduce the candle-power standard from 23 to 10 and to require a gas with a heating value of from 550 to 600 British thermal units, the heat standard approved by the Wisconsin Public Service Commission.

## FIRE AND POLICE

### Firemen's Park Attracts Attention

Athens, Ga.—The members of the Fire Department at the uptown hall have converted the space between the curbing and walk on Prince avenue into a most attractive little park. The ladies of the Garden Club sent to them a number of flowers, which have been put out, and in a short while the place will be greatly beautified.

### Police Chief Is Threatened by Vagrants

El Paso, Tex.—Chief of Police Jenkins has received a letter threatening him with assassination if he does not let up in the enforcement of the vagrancy laws. The police are making a war to rid the city of undesirables and as precaution against an invasion by the bad characters expelled from other cities who are understood to be making their way here. No attention will be paid to the threats against the Chief, who says he is determined to take advantage of the new law to rid the city of those who may possibly become criminals.

### Syracuse Mounted Police Make First Appearance

Syracuse, N. Y.—The new Syracuse mounted police made their first public appearance at a parade of the Knights Templars. The squad is to be permanent, and will be used in parades and in handling crowds in the streets.

### Effective Work of Kentucky Fire Marshal

Louisville, Ky.—Reduction of incendiary fires throughout the State by one-half is the proud claim contained in the annual report of State Fire Marshal William F. Neikirk. According to figures of the report, the number of conflagrations reported to the office of the Fire Marshal during the year by 103 counties was 2,018, inflicting financial loss to the extent of \$2,566,613.49. The number of fires reported in the class with those called "cause unknown" was 491, while the number of incendiary and suspicious fires was 145.

As to incendiary fires the report says:

During the first part of 1908 there were 48 of these fires reported to this office. During the first quarter of 1909 there were only 22. I believe the work of the office during the year has had something to do with this. We have also been enabled to make our investigations more thorough, as will appear from disposition of these 22 cases. Two were shown by investigation to be purely accidental fires. Five were classed as of unknown origin, with no positive evidence of incendiarism. In nine there were evidences of incendiarism, but not sufficient to charge any person. Six have been submitted to the grand juries, and in one case a conviction has been secured. We are now able to reach a fire soon after it occurs and to give more time to the investigation. Again, having to some extent become acquainted in many parts of the State, we find it easier to obtain information.

Chief among the causes of fires Marshal Neikirk places the careless use of matches, or matches dropped around buildings, and which were subsequently carried into them by mice or sparrows and subjected to conditions of ignition. He lists damage caused by children playing with matches at \$3,279; by matches carried by rats, mice and sparrows at \$34,508.50, and matches carelessly used or thrown at \$80,624.85, making a total of \$118,412.35.

### Corruption in Montreal Fire Department

Montreal, Que., Canada.—Since June 10 the Fire Department has been under examination at the Royal Commission now inquiring into civic maladministration in Montreal, and, day after day, there is being revealed a condition of corruption, probably unsurpassed on this continent. Session after session, witnesses—firemen of only moderate means—take the stand to testify to amounts they have paid or have been asked to pay to secure appointments. "The kiddies in the street," one of the men indignantly declared, "will shout after us the query as to how much we gave for our coats," and it was shown that away down the river below Quebec City, and well toward the Gulf, it was common talk that a position in the Montreal Fire Department was only a question of money.

### Altoona Firemen Don Caps

Altoona, Pa.—The city firemen have donned their new summer caps, and their neat appearance is causing much comment about the city. The cap has been officially adopted by the Fire Department and is the first departure made in many years from the heavy blue cloth caps. The new headpieces are of brown straw and are made high in the crown, being woven so as to allow a free circulation of air inside. The visors are made military style and fit snugly down over the eyes, effectively protecting the eyes from the fierce rays of the sun. The weight of the new caps is only a fraction of that of the old ones, and the firemen are highly pleased with the innovation, as the old caps were often the cause of severe headaches.

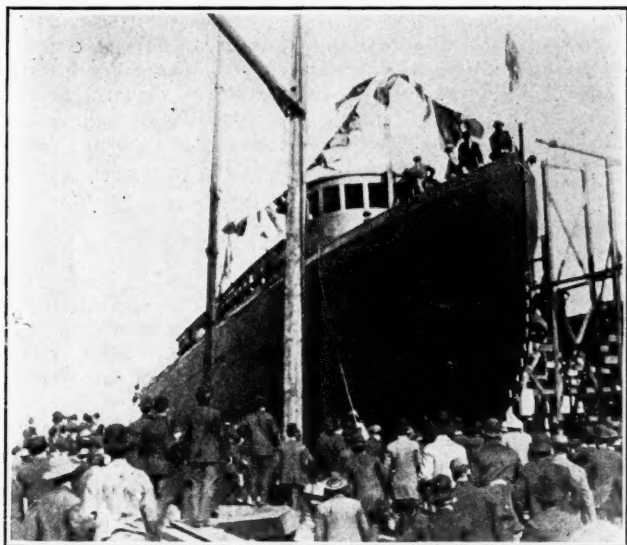
### New State Criminal Code Makes Trouble for Police

Spokane, Wash.—The police of the cities and counties in Washington are experiencing what they mildly term "a monkey and parrot time" over the new criminal code, which classes as misdemeanors such things as tipping, cigarette smoking, screening saloon windows and the presence of women in places where liquors are served. Many outside of Spokane County have been arrested and fined for smoking cigarettes. There are numerous opinions as to the constitutionality of the law, but the chief questions involved are: Had the Commission created in 1908 by Governor Mead authority to frame a new code; and may a bill contain many subjects, when the constitution clearly provides that no bill shall contain more than one, and that that must be expressed in the title? Leaders of the bar are agreed that many provisions of the code are unconstitutional, and George F. Vanderveer, chairman of the Commission responsible for the law, which was rushed through during the closing hours of the last Legislature, believes that some changes should be made.



## San Francisco's Two Sister Fireboats

San Francisco, Cal.—The second of the fireboats built for the protection of the water front was launched June 15 at the Risdon Iron & Locomotive Works. The boat, the Dennis T. Sullivan, is a sister boat to the David Scannell, shown in the illustration, and is named in memory of the



LAUNCHING OF SAN FRANCISCO FIRE BOAT  
Courtesy of the San Francisco Chronicle

Fire Chief who died in the catastrophe of April, 1906. Her measurements are: Length, 129 feet; breadth, 26 feet; depth, 12 feet 9 inches. She is built of steel throughout and will be equipped with twin-screw engines. The two pumps will furnish a supply of water at a pressure of 150 pounds to the inch, equivalent to the streams from fifteen of the steam engines used on land. The boat will be ready for service in September.

## Commissioners Take Time of Hitching Up

New Haven, Conn.—Mayor Martin and the Fire Commissioners recently made their annual inspection of the Department. Every engine house in the city was visited, and at each house the horses were run out and hitched to the apparatus. The following table shows the time taken by each company in hitching up the horses from the time the gong sounded and the horses were released. It also shows last year's figures in comparison. Those marked with a (\*) have a three-horse hitch.

	1909 Time secs.	1908 Time secs.		1909 Time secs.	1908 Time secs.
Engine No. 1.....	10	11	*Engine No. 8.....	10½	14
Hose No. 1.....	16	14½	Hose No. 8.....	9	8½
*Engine No. 2.....	9½	11½	Engine No. 9.....	8	16½
Hose No. 2.....	7	8	Hose No. 9.....	9	10
Engine No. 3.....	8	9	Engine No. 10.....	7	7½
Hose No. 3.....	9	9	Hose No. 10.....	8½	13
*Engine No. 4.....	15	15	Engine No. 11.....	11	10
Hose No. 4.....	14	10	Hose No. 11.....	10½	10
Engine No. 5.....	10	8½	*Engine No. 12.....	10½	17
Hose No. 5.....	10	10	Hose No. 12.....	9	10½
*Engine No. 6.....	14	17	*H. & L. No. 1.....	14	16
Hose No. 6.....	8	8	H. & L. No. 2.....	12	16
*Engine No. 7.....	7	9	H. & L. No. 3.....	8	9
Hose No. 7.....	7	8½	*H. & L. No. 4.....	11½	12
			Chemical No. 1....	9	6½

## Mandamuses Council to Appoint Probation Officer

Toledo, O.—The serving of a writ of mandamus upon President A. A. Moody and the City Council to compel it to create the office of Probation Officer of the Police Court, is the first time in the history of that body, it is declared, that this process has been brought into service. According to the order of Judge Chittenden, Council must pass an ordinance at once creating the office or must answer in court. In some quarters of the City Hall it was asserted that under the law a legislative body cannot be mandamusd. Assistant City Solicitor Nelson, to whom the writ was referred by Council, would not attempt to say at present whether this was the case.

## GOVERNMENT AND FINANCE

## Philadelphia's Debt Is Jumping

Philadelphia, Pa.—Because of the rapid increase in the city's debt the semi-annual payment of interest on bonds has reached the high water mark of \$1,563,087.37. During the two years of the Reyburn administration the debt has been increased by \$20,000,000, and now totals \$90,192,700. The city debt on July 1, 1907, was \$66,705,520; on July 1, 1908, it was \$79,277,020. The present total of \$90,192,700 will be further increased within a few weeks by the negotiation of the new loan of \$5,739,700, which Councils have just authorized.

## Mandamus to Make Council Work

Roscoe, Pa.—Roscoe is in the limelight as a result of a tangle in its municipal affairs. School Board and Council troubles are numerous and the latest was brought to light when mandamus proceedings were started against six Councilmen to compel them to hold meetings and perform their duties. The proceeding is brought in the name of the Commonwealth by District Attorney C. H. V. Acheson, upon the suggestion of John Worton, John A. Morrison and John Porter.

## San Francisco Votes Against Civic Center

San Francisco, Cal.—But one proposition of all the projects placed before the voters of the city in the special bond election, June 23, carried—the building of a Polytechnic High School. All the rest were beaten, and most important of all in the beating was the "civic center" scheme, which contemplated buying blocks of land at the junction of Van Ness avenue and Market street, where it was proposed to build a new City Hall. The parks, playgrounds, boys' detention home and the aquatic park likewise received the stamp of public disapproval, for they were not seriously regarded by the voters, or considered as necessities, and there was a well-defined sentiment in the air that no additional tax burden would be borne by the people of the city for things that were not needed. The total vote was small, demonstrating that the majority of voters did not think it worth while to go to the polls to vote on the issues. In striking contrast with this display of popular disapproval was the bond election of May 11, 1908, when a heavy vote was cast for propositions which the citizens then regarded as essential and absolutely necessary to the welfare of the city.

## Municipal Slaughter House to Give Pittsburg Cheaper Meat

Pittsburg, Pa.—According to plans which the Department of Health has devised, Father Pitt will be his own butcher. He will inspect all cattle, sheep and hogs before they are killed for consumption in this city, and will also place his label of approval on each carcass before it is permitted to leave the big slaughter house which it is proposed to erect. Mayor Magee is so thoroughly acquainted with the meat question in Pittsburg that he is alarmed, not so much because of the price, but because of health conditions. He also says he can give the citizens meat at first cost. Owing to the high price of cattle and the fact that the market for by-products is controlled by the beef trust, there are few Pittsburg butchers dressing their own meat. Practically all depend on the Western market. It is estimated that the Western packers figure on making \$9 a head on each steer they kill. The object of the city abattoir, according to Mayor Magee, is to save the butcher at least \$9 on each animal.

## Unanimous for Commission Form

Tacoma, Wash.—The committee of fifteen freeholders selected to revise Tacoma's charter or draft a new one providing for the commission plan, at its first meeting adopted without a dissenting vote a resolution favoring a form of government by a Mayor and four Councilmen. Mr. Hendley followed the discussion by moving to adopt a resolution to proceed on the Mayor and four Councilmen plan. His resolution provides that the five men shall be paid an adequate salary to be decided upon later and that they shall devote all the necessary time to the faithful performance of their duties. The initiative, referendum and recall provisions are also embodied in the motion.

### LOWEST AND BEST BIDDER

#### Three Cities Find Term a Stumbling Block—Legal Definitions—Columbus Decision Angers Citizens

Columbus, O.—The most exciting scene that has been enacted in the City Hall in many a day followed the action of the Board of Public Service in awarding about \$70,000 worth of asphalt street work to Contractor A. G. Pugh, of Columbus, on Ohio, Oakwood, Eastwood and Jefferson avenues. A delegation of property owners made personal criticisms of members of the Board and threatened litigation. Some went further than that and threatened to use dynamite on the contractor's machinery if he attempted to do the work. The Cleveland Paving Company and A. G. Pugh were bidders for the work at its third successive advertisement, the totals being about \$10,000 under those of the first bids. The Cleveland company was the lowest bidder. The Board awarded the contract to Pugh, stating in a resolution that in its opinion his bid was the "best" bid, because certain officers and employees of the Cleveland company, by their own confession, had been guilty of paying money to former officials and employees of the city. The city charter says that contracts shall be awarded to the "lowest and best bidder."

#### Can Be Only One Lowest and Best Bidder

Elyria, O.—Judge Clarence G. Washburn, in the Common Pleas Court, has announced a decision on the division of contracts by city Boards of Public Service, which, if sustained, will end a common practice over the State. He granted an injunction asked by Joshua Boynton, a taxpayer, restraining the awarding of contracts to the Neptune Meter Company for 800 Trident water meters at \$8 each, and the Thomson Meter Company for 700 Lambert meters at \$8 each. Judge Washburn holds that the law specifies that the board must award contracts to the "lowest and best bidder," and that no two firms can be the lowest and best. He says the board may readvertise for bids.

#### Lowest and Best Bidder Defined

San Francisco, Cal.—In an opinion rendered, City Attorney Long, passing upon a question raised by the Board of Education, but applying to all departments, interprets the charter, requiring bids to be let to the "lowest and best bidder," to mean that the bid must be lowest and best in point of price without giving the Board discretionary power to determine whether or not one bidder is more likely to give better service to the city than another. The opinion says:

When a bidder submits a proposal which follows in all matters the provisions of law, the charter, and the specifications of the Board or officer inviting the proposals, his bid must be considered and the only question to be determined in regard to his bid is whether or not it is the lowest bid. Before a contract is entered into he is required to give a bond for the faithful performance of the work and the law deems that this bond given by the bidder amply protects the city and county in case the bidder fails to carry out his contract or is unfaithful in the performance of the contract. If the bidder submitting the lowest bid should, after the contract has been awarded to him, fail to give faithful service or does not live up to the terms of his contract, the department or board having superintendence of the work or matters contemplated by the contract should refuse to pay him the amount for any work done by him under the contract and should cancel the contract and let a new one, but the law will not permit the board or department to speculate prior to the letting of the contract whether or not the bidder will carry out the terms of his contract, the law deeming that the city is amply protected by the bond required.

#### Indicted for Bad Roads

New Philadelphia, Pa.—For failing to repair the borough and county roads, as ordered by the Grand Jury, members of the Borough Council and the Supervisor of New Philadelphia have been indicted.

#### Small Town Would Annex Larger One

Uhrichsville, O.—This town will be blotted off the map if the plans of the annexationists to consolidate with Dennison are carried out. The principal argument of the annexationists, who comprise the majority of the residents of Uhrichsville as well as Dennison, is the unspellability of the name of the town. Although Uhrichsville is the larger, with about 5,000 population, the plan is to adopt Dennison as the name of the new city. Dennison has about 3,500 population. The two cities adjoin.

### REFUSE COLLECTION AND DISPOSAL

#### Camden Merchants Condemn Streets

Camden, N. J.—Once more the cry goes up by the business men of Camden of the unclean condition of the business thoroughfares. Members of the Business Men's Improvement Association, of Kaighn avenue and Broadway, talk of calling a special session of their organization to pass resolutions calling on the Street Committee and City Council to see if something cannot be done to compel attention to the work. Every year the same cry goes up from the heads of business interests, who declare the condition of the streets renders it impossible to make creditable displays of their goods, but this year vigorous efforts are to be made to compel action.

#### Clean City Day in Pittsburg

Pittsburg, Pa.—Such a scene was never before witnessed in Pittsburg as that of the first "Clean City Day," June 28, and it was a general remark of citizens that if the sanitary inspectors of the future do their duty it will be the last scene of its kind. In the early hours of the morning, and even in the late hours of the Sunday preceding, streets in most of the crowded districts of the city exhibited an aggregation of debris of all kinds which suggested the appearance of San Francisco after the earthquake. The street car strike also aided and abetted the spectacle of "Clean City Day." The masses could not get to the parks or the country on Sunday. Forced to stay at home, they began Sunday evening to empty the refuse of their cellars and attics into the streets at the thousands of spots indicated by placards. They deposited with a vengeance. They selected other thousands of spots not indicated officially, and even at night, after tremendous hauling, great piles of malodorous matter remained in the streets of all the crowded sections of the city. For most of the time 325 wagons, with from 600 to 700 men loading and emptying them at the many dumps, labored in the hot sun. On Monday 3,225 large wagonloads of refuse were collected and by the end of the week Superintendent John F. O'Toole, of the Bureau of Highways, estimates that 10,000 wagonloads of rubbish will have been carted away. The wagons used hold from two to five yards and average three and a half.

#### Pensacola Screens Garbage Cans

Pensacola, Fla.—A new ordinance relating to protection against flies requires that all garbage cans and kitchen waste be covered with screens.

#### Private Collection of Rubbish Is Expensive

Pittsburg, Pa.—In the investigation made with a view of securing a permanent and efficient rubbish disposal plant the city authorities have learned that it costs residents now between \$2.75 and \$3 a load for the disposal of rubbish. These figures were secured after an investigation of the Soho dump, where about 175 loads a day are deposited at a cost of from \$4.80 to \$5.25 a day. It is said that wrapping paper brought to this dump is worth \$30 per ton. From the cost of maintaining the Soho dump it is estimated that it costs citizens in old Pittsburg about \$300,000 a year for the disposal of the rubbish now gathered up in the old city. Experts estimate that it costs the residents of the greater city about \$354,000 annually for the collection of rubbish by private contract, while it is stated a city collection could be established for approximately \$280,000. It is pointed out that a city collection would be more systematic; could be directed with a view of general public sanitation and above all would insure collections in the districts where it is most needed, but where residents cannot now afford to have it hauled away. It is estimated that two incineration plants, sufficient for present demands, could be established for about \$185,000, and that the revenue from collection privileges would pay the cost of operation.

#### Flushing to Cool City Streets

Washington, D. C.—With a view to tempering the heat in the downtown sections of the city during the summer, Engineer Commissioner Judson made a motion before the District Board that certain of the downtown streets be flushed once daily with water. The motion carries a provision that the flushing can be stopped during important fires and at the order of the Superintendent of the Water Department when the supply is unduly encroached upon.



## RAPID TRANSIT

### Plans for Municipal Street Railway Defeated

San Francisco, Cal.—For the third time in six years and six months the efforts of the municipal administration to issue bonds for construction and operation of an electric railway on Geary street have been defeated at the polls. After a vigorous campaign, in which strong and persistent appeals were made to all classes of voters, the administration and the interests prompting the election expected a final victory, and great was their astonishment when the total returns came in at the Registrar's office, telling that the proposition had not received enough votes to incur a debt of nearly \$2,000,000 for the purpose of building and equipping the Geary street railway.

### Interborough Submits Rapid Transit Plans

New York, N. Y.—The Interborough company has submitted to the Public Service Commission its new transit plans. Broadly, they provide for the extension of the present subway northward under Lexington and Third avenues and a southerly extension on the west side of the city from Long Acre Square to the Battery; additional elevated tracks for express service; the connecting of the Steinway tunnel with the present subway; a subway under Canal street which will permit the running of Interborough trains over Manhattan Bridge to connect with the present subway in Brooklyn, and an elevated line connecting the Second avenue elevated with the Queensboro Bridge.

### Street Car Company Disapproves Citizens' Plans

Schenectady, N. Y.—The Citizens' Committee has been looking into complaints of congestion in the street car service and they made out a complete plan for a rearrangement of the routing and submitted their plans to the Public Service Commission. The Commission transmitted the letter to the Schenectady Railway Company and asked for comments and suggestions. These have been made by General Manager Peck, who says that the plans would increase rather than relieve congestion.

## MISCELLANEOUS

### Dallas Plans to Install Public Baths

Dallas, Tex.—Beginning with the public baths to be installed shortly at the Cotton Mills Public Park and Playgrounds, the city of Dallas is to install a system of public baths and public toilets. Already the question of a location in the business center for one or more such places has engaged the attention and discussion of the Board of Commissioners. The amount to be expended in such an undertaking and the possibility of beginning down town this year, are the questions considered. Bathing places will be located in the more crowded residence sections first and the sanitary closets will be placed in the downtown regions first. For this latter work it is the expressed belief of some of the Board of Commissioners that it will be necessary to follow the lead of cities like New York and to put the places underground. To this end excavation can be made under certain street intersections, and these will accommodate a number of persons, probably fifty at the start, with room for expansion as the demand increases. Of course, it will be necessary to select a location that is well above the sanitary sewer level. The question of toilets, it is expected, will be attended to this year for at least one location.

### Tallest Flag Pole Erected in Battery Park

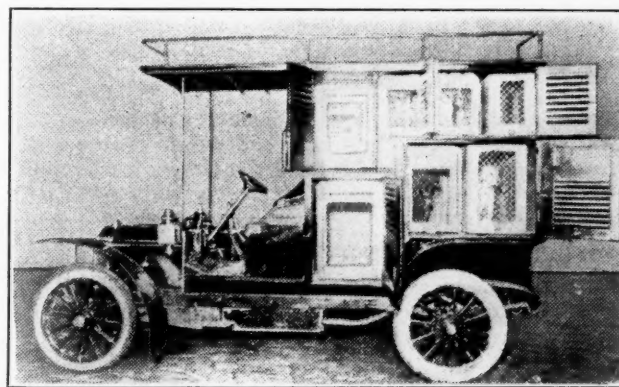
New York, N. Y.—The tallest flag pole in the country was recently erected in Battery Park. The ball at the top will be 163 feet above the ground. The new pole takes the place of one removed when the subway was built. Park Commissioner Smith, when looking about for a new pole, heard that the hollow steel mast of the old yacht Constitution was not in use and he opened negotiations for it. Eventually he got it for \$600. On the Fourth of July the first flag will be raised to the top of the new pole. The flag which is being specially made will measure 40 by 60 feet.

### More Daylight in Cincinnati

Cincinnati, O.—The City Council has passed an ordinance providing for the enforcement of the "more-daylight" plan, which was suggested some time ago by heads of commercial and business clubs. It contemplates moving the clock ahead one hour in May, June, July, August and September. So far as known, Cincinnati is the first city in this country to change the working hours during the summer months. The ordinance was introduced by Councilman Mullen, accompanied by a petition signed by 90,000 persons, and it was passed unanimously. On May 17 a committee from the National Daylight Association called on President Taft, who suggested that the movement be started in Cincinnati. The movement is said to have started in England, where even greater changes than one hour are contemplated.

### New Service for Collecting Stray Dogs

Paris, France.—Paris, the home of so many novelties, has started a new custom which undoubtedly will be taken up and followed in many big cities elsewhere. It is nothing less than using automobiles for conveying stray or unlicensed dogs to the pound or "la Fourriere," as it is called here. A hasty glance at the automobile when closed would



PARIS DOG AMBULANCE—SEPARATE COMPARTMENTS  
Courtesy of the Pittsburg Gazette-Times.

only suggest to the onlooker a possible delivery wagon not unlike many that are in constant use in the city by the large firms. It is only when the side is opened its true mission is apparent. There are seven basket cages arranged in two rows, and differing in size. When a dog is picked up he is immediately put in the basket most suitable to his height. Individual doors over each cage, made like blinds, are provided for the ventilation necessary for the animal's comfort in transportation.

### Mayor Signs Taxicab Ordinance

New York, N. Y.—Mayor George B. McClellan has signed the ordinance providing for the inspection of taxicabs and fixing their rates. The measure will become effective in ninety days or about October 1. Under the law, municipal inspectors are to read the taximeters at frequent intervals to make sure that they do not grind out miles too fast, and the fares are to be lowered according to the plan recommended by the Mayor. Taxicabs seating two persons are to charge 40 cents for the first half mile and 10 cents for each additional quarter thereafter, while the rate for the larger machines will be 50 cents for the first half mile and 10 cents additional for each succeeding quarter.

### To Mark Off an Official Mile

Washington, D. C.—Granting the request of several citizens, Col. W. C. Haskell, Sealer of Weights and Measures, will mark in a permanent and easily discernible way an official mile, along K street northwest between Ninth and Eighteenth streets. This mile was originally laid off by the District Surveyor as a course on which to test meters on taxicabs in use in the District, and as such has been used for several weeks. Automobilists have made inquiries as to the marking of the mile and the four quarters, saying that they desired to test the distance measuring apparatus and the speedometers on their machines. Their inquiries showed the value of an official mile in the heart of the city, which could be used by private citizens as well as by officials.



## LEGAL NEWS

### A Summary and Notes of Recent Decisions—Rulings of Interest to Municipalities

#### Responsibility of Custodians of Public Money

**Town of Cameron vs. Hicks.**—For reasons of public policy the custodian of public money is held liable and must account therefor as a debtor or insurer, notwithstanding the relation, subsisting between him and the State or municipality, is substantially that of bailment for hire, and no loss of the fund otherwise than by an act of God or the public enemy, will relieve him from the obligation to pay it. Loss by fire, theft, burglary, bank failure, or the like does not relieve him, however careful and prudent he may have been.—Supreme Court of Appeals of West Virginia, 64 S. E. R., 832.

#### Sewers—Damages—Liability

**Metz vs. City of Asheville.**—The maintenance of a free public sewer system by a city is an exercise of its police power for the public benefit, so that a city would not be liable for the death of a citizen from illness caused by the pollution of a stream by the sewer which emptied into it.—Supreme Court of North Carolina, 64 S. E. R., 880.

#### Ordinances—Defective Complaint

**Mayor, Etc., of Borough of Vineland et al. vs. Kotok et al.**—A complaint for disorderly conduct, in violation of a city ordinance, failing to allege that the disorderly conduct charged was within the limits of the borough, was fatally defective.—Supreme Court of New Jersey, 72 A. R., 959.

#### Municipal Corporations—Suits—Venue

**Phillips vs. Mayor, Etc., of Baltimore.**—Laws 1908 provide that every corporation of this State may be sued in any county, or in the city of Baltimore, as the case may be, where its principal office is located, or where it regularly transacts business or exercises its franchises. Held, that the phrase "every corporation in the State" was not intended to embrace municipal corporations, and the act did not change the common-law rule that a municipal corporation cannot be sued in courts other than those of its own territory upon a transitory cause of action.—Court of Appeals of Maryland, 72 A. R., 902.

#### Eminent Domain—Land Outside of City

**City of Tacoma vs. Titlow et ux.**—The determination by the proper municipal officer of the questions of public use and public necessity is, in the absence of fraud, conclusive in a proceeding to condemn for a street. Where the limits of a city extend only to the line of ordinary high tide, harbor lines being established in front of the corporate limits of the city, as provided by Constitution, the city, by the express provision of section 3, may extend streets to the harbor area over the intervening tide lands. The question of the power of a city to assess lands within its limits to pay the award does not arise in a proceeding by the city to condemn land outside the city for a street; as whatever damages are assessed in the proceeding must be paid by the city before the property can be taken or damaged.—Supreme Court of Washington, 101 P. R., 827.

#### Defective Sidewalk—Negligence

**Stock et ux. vs. City of Tacoma.**—The rule that a person who, with knowledge of the defective condition of a sidewalk, attempts to use it when the defect can easily be avoided by going around it is guilty of contributory negligence barring a recovery for injuries sustained governs only where an unusual condition exists, as an icy sidewalk, sidewalks in course of repair, or unusual obstructions, and does not extend to an unguarded and unlighted sidewalk constructed along a bulkhead 4 or 5 feet high.—Supreme Court of Washington, 101 P. R., 830.

#### Sewer Assessment—Benefits

**Stewart vs. City of Chehalis.**—An assessment under Laws 1907 for the construction of a sewer, is not void because the sewer has not proved of any benefit to the premises assessed because they have not been connected with the sewer.—Supreme Court of Washington, 101 P. R., 841.

#### Street Railroads—Paving—Liability

**City of New York vs. New York City Railway Company.**—Under Railroad Law, as amended by Laws 1892, requiring every street surface railroad company to keep in repair the portion of the street between its tracks and two feet outside under the supervision of the local authorities and when required by them to do so, etc., a street railway company operating under a franchise requiring it to keep in permanent repair the portion of the street between the tracks and two feet outside must repave its part of the street when the pavement as a whole has become so out of repair that a new pavement is necessary and the proper local authorities have determined that the public interests require that a new and improved pavement shall be laid, though the company has maintained the existing pavement in good repair within the railroad area of the street.—Supreme Court of New York. 116 N. Y. S., 938.

#### Civil Service Employees—Probationer

**McVay vs. City of New York.**—Municipal Service Commission rule 35 provides that every original appointment in the competitive class shall be for the probationary period of three months, and, if the conduct, capacity and fitness of the probationer are satisfactory to the appointing officer, his retention in the service after the end of such term shall be equivalent to his permanent employment. Held, that an appointee receives but one appointment which is continuous whether it lasts for three months or longer, the probationary term being carved out of the whole term, and hence a probationer, having been improperly removed, on his reinstatement, is entitled to recover his salary for the period of his illegal exclusion from his office.—Supreme Court of New York. 116 N. Y. S., 908.

#### Encroachment on Street—Rights of Abutting Owners

**Button vs. City of Louisville et al.**—An abutting owner may make a reasonable use of the street in improving his property, provided the obstruction is not forbidden by the municipal authorities, and such authorities cannot legalize an obstruction which is unreasonable. The court, in determining whether the obstruction of a street by an abutting owner improving his property is unreasonable, will give weight to the judgment of the city authorities and to the universal custom in the erection of buildings in cities.—Court of Appeals of Kentucky. 118 S. W. R., 977.

#### Street Improvement—Benefits

**City of Carbondale vs. Walker et al.**—Where, in proceedings to confirm a special assessment for a street improvement, the jury were instructed that, unless the improvement would add to the market value of the property assessed, the property would not be benefited, forms of verdict submitted, which implied that the property objected for would receive some benefit from the improvement, were not misleading.—Supreme Court of Illinois. 88 N. E. R., 296.

#### Taxation—Defenses—Estoppel

**City of New York vs. Halsey.**—That the Board of Tax Commissioners refused to permit defendant to inspect the record of assessed valuation of property during the period it was open for inspection and correction, and afterward informed him that no valuation of personal property for the purpose of taxation had been made against him, constituted an equitable defense of estoppel to an action by the City of New York to recover personal property taxes levied against defendant, under Greater New York Charter, authorizing the court in which any suit is commenced to enforce a payment of any personal property tax to dismiss the suit where the person taxed has an equitable defense thereto; and that the Board of Tax Commissioners did not act as agents of the city, but as public officers, was immaterial.—Supreme Court of New York. 116 N. Y. S., 946.

#### Location of Doorsteps—Liability for Accident

**White vs. City of Philadelphia.**—A city ordinance, providing that doorsteps shall not extend more than 4 feet 6 inches into any footway of any street 50 feet wide or upward, or a proportionate distance in any street of less width, applies, not to the width of the street as platted, but to the width as physically opened. A city is not liable for injuries caused by a fall over a doorstep where there was a safe footway of 6 feet 4 inches between the steps and the curb.—Supreme Court of Pennsylvania. 72 A. R., 856.

**Paving Contract—Approximate Estimate**

*City of Greensboro vs. Southern Paving & Construction Co.*—A contract for street paving required the work to be done as a whole, and not in sections, according to specifications under the direction of the city's engineer. The notice to bidders and specifications alone provided for payment on semi-monthly estimates as the work progressed, with a retention of 10 per cent on each "approximate estimate." The contract also provided that the contractor should be responsible for any work until its completion and final acceptance, and that the acceptance should not relieve the contractor of any obligations to do reliable work previously described. Held, that the word "approximate" was tautologically used to accentuate the word "estimate," which was not to be construed as a final mathematical ascertainment of what was set forth, and hence the acceptance of sections of the work by the city engineer and issuance of approximate estimates thereon to the contractor did not bar the city's right to defend, when sued for the balance due under the contract, on the ground that the work in the sections estimated did not constitute a compliance with the specifications.—U. S. Circuit Court of Appeals, 168 F. R., 878.

**Defective Street—Injury—Charge**

*Karczenska vs. City of Chicago.*—In an action against a city for injuries from an alleged defective sidewalk, where the court charged that the city was only bound to use ordinary care to see that its sidewalks were kept in reasonably safe condition, and that, before plaintiff could recover, the jury must believe that the city failed to exercise reasonable care to have the place in a reasonably safe condition for persons using due care, it was not error to refuse a charge that the city was not liable for latent defects not discoverable by ordinary care, and that, if the sidewalk was in a reasonably safe condition for ordinary travel by persons using such degree of care as reasonably prudent persons would use for their safety under the circumstances, so far as was discoverable by the city by the use of ordinary care, plaintiff could not recover.—Supreme Court of Illinois, 88 N. W. R., 188.

**Near-Beer Ordinances**

*Campbell vs. City of Thomasville; Jones vs. Mayor, Etc., of Waycross.*—A municipal ordinance may be void in part and good in part. The void and the good may be so interdependent as to render the whole invalid, or may be so separable as to allow a segregation, and to permit of the enforcement of one part, while the remainder is nugatory. (a) The unreasonable requirement of the "near-beer" ordinance of the city of Thomasville, restricting the nature of the sureties to be taken on the prescribed bond, is not such a vital part of the ordinance, and is not so interwoven into the whole legislative scheme, as to render the entire ordinance void. (b) One who has been convicted of selling "near beer" in violation of that ordinance, but who has made no application to the City Council and has tendered no bond at all, is not in a position to complain of the illegality of the requirement that the sureties on the bond shall be freeholders. This provision being void, the presumption is that, if he had tendered a bond otherwise sufficient, the City Council would have ignored the void provision and would have accepted the bond. (c) In the "near beer" ordinance of the city of Waycross the void and the good are so interwoven as to indicate an invalid legislative design, and that ordinance must fall entirely.—Court of Appeals of Georgia, 64 S. E. R., 815.

**Action on Official's Bond—Recovery**

*Town of Cicero vs. Hall et al.*—The official report of a town collector required under the law and his bond to collect and pay the money over to the town treasurer, which shows the amount collected and paid out, is a settlement of his account with the town, and the balance shown and not properly accounted for, arising from his failure to pay over the money on the ground that he lost it through the failure of a bank in which he had deposited it, is chargeable with interest from the date of the report under the statute providing that creditors shall be allowed interest on money due in the settlement of account from the day of liquidating accounts and ascertaining the balance.—Supreme Court of Illinois, 88 N. E. R., 476.

**Town Treasurer's Liability on Bond**

*Town of Cicero vs. Grisko et al.*—The charter of a town vested the corporate powers in a Board of Trustees and made the supervisor thereof ex officio Treasurer and member of the Board. He executed a bond as Treasurer conditioned on his accounting for the moneys coming into his hands. The Board of Trustees instructed its Finance Committee to ascertain what arrangements could be made for cashing tax warrants. The committee reported that a bank had agreed to cash warrants drawn in anticipation of taxes and charge therefor a specified interest. The resolution directing the issuance of the warrants directed their issuance in favor of the bank "for the purpose of creating a fund to pay warrants drawn," etc. The anticipation warrants were delivered to the Treasurer and by him delivered to the bank. Thereafter town warrants issued for current expenses of the municipality were stamped on their face "payable at \* \* \* bank." The Treasurer was given a passbook by the bank, and when warrants were delivered by him he was given credit for the face thereof, and these amounts were carried on the books of the bank in the same manner as deposits of cash were carried. Held, that the anticipation warrants were converted into cash by the Treasurer, who deposited the same in the bank, rendering the surety on his bond liable for the loss thereof because of the insolvency of the bank.—Supreme Court of Illinois, 88 N. E. R., 478.

**Tunnel in Street—Public Easement—Damages**

*Fifty Associates vs. City of Boston.*—The public easement in a street includes the use of the land below the surface, as well as the use of the surface, and a tunnel is a proper street use. The Legislature may authorize the building of a tunnel in a street, without making compensation for bringing to an end a use which the owners of the fee in the street had heretofore made of the land under the street. Where, by virtue of Statute, 1894, as amended by Statute, 1895, giving abutting owners compensation for all damages sustained by the construction of a subway, the abutter is entitled to recover for the physical injury done his building by the settling thereof, the expense of paying a competent person to see that proper precautions were taken to make the physical injury as small as possible is properly included.—Supreme Judicial Court of Massachusetts, 88 N. E. R., 427.

**Obstructing Sidewalks—Use of Skids**

*John A. Tolman & Co. vs. City of Chicago et al.*—Whether the use of skids to convey merchandise to and from a store building which obstructs the sidewalk is reasonable is a question of fact. It was agreed in an action by a merchant to restrain the city from interfering with the use of skids to convey merchandise to and from a building over the sidewalk that the use of skids obviated the necessity of placing merchandise on the sidewalk, and enabled plaintiff to remove it in from one-half to one-tenth of the time otherwise required; that there is no other method by which it could be removed with less obstruction; that, unless the use of skids or other mechanical appliance be permitted, it would be impossible for plaintiff to move to and from its building the bulky packages in which it deals, and it could not successfully prosecute its business; and that the skids are used only when reasonably necessary in the conduct of plaintiff's business. Held, to entitle plaintiff to an injunction restraining interference with the reasonable use of such skids.—Supreme Court of Illinois, 88 N. E. R., 888.

**Streets—Bicycles**

*Molway vs. City of Chicago.*—While a city is not an insurer of the safety of its streets, it is bound to keep them in a reasonably safe condition for ordinary modes of travel, including bicycles thereon; their use being an ordinary mode of travel.—Supreme Court of Illinois, 88 N. E. R., 485.

**Accident—Defective Wharf**

*Klein et al. vs. City of Philadelphia.*—In an action against a city to recover for the death of a boy who fell into a river while playing at the end of a wharf, that the wharf was out of repair is no ground for holding the city liable, unless it is shown that the accident happened because thereof.—Supreme Court of Pennsylvania, 72 A. R., 845.



## THE MUNICIPAL INDEX

In Which Are Listed and Classified by Subjects All Articles Treating of Municipal Topics Which Have Appeared During the Past Month in the Leading Periodicals

It is our purpose to give in the first issue of each month a list of all articles of any length or importance which have appeared in all the American periodicals and the leading English, French and German ones, dealing more or less directly with municipal matters. The index is kept up to date, and the month of literature covered each time will be brought up to within two or three days of publication. Our chief object in this is to keep our readers in touch with all the current literature on municipal matters. In furtherance of this we will furnish any of the articles listed in the index for the price named after each article; except that where an article is continued in two or three issues of the paper, the price given is for each of said issues. In addition to the titles, where these are not sufficiently descriptive or where the article is of sufficient importance, a brief statement of its contents is added. The length also is given, and the name of the author when it is a contributed article.

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**Theory of Economic Road and Street Location and Design.** 1 p., Engineering-Contracting, June 2; 1 2-3 pp., June 9; 1 p., June 16; 1 1-3 pp., June 23. 10 cts.

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**The Great German Military Road and Boulevard.** By H. P. Kieffer. Illustrated, 6 pp., Municipal Engineering, June. 25 cts.

**Road Congress in Paris, The First International.** What led up to it, its deliberations and results. Paper before Boston Society of Civil Engineers. By A. B. Fletcher. Illustrated, 28 pp., Journal Assn. of Engineering Societies, April. 30 cts.

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**Copper Sulphate Treatment.** Methods of destroying algae at Middletown, N. Y. Conditions determining quantity to be used. By Irving C. Bull. 1 p., Municipal Journal and Engineer, June 2. 10 cts.

**Copper Sulphate Treatment at Albany.** Details regarding application, costs and results. 3-4 p., Municipal Journal and Engineer, June 2. 10 cts.

**Sterilization of Water and of Sewage Effluents, Practical.** By H. C. H. Shenton. 4 pp., Contract Journal, May 5. 20 cts.

**Practical Sterilization of Water and Sewage Effluent.** Paper before Institute of Municipal Engineers. By H. C. H. Shenton. 3 pp., Canadian Engineer, May 28; 2 pp., June 4; 1 1-2 pp., June 11. 10 cts.

**The Forty Million Gallon Disinfecting Plant of the Jersey City Water Supply Company at Boonton, N. J.** By J. L. Leal, G. W. Fuller and G. A. Johnson. Illustrated, 3 pp., Engineering News, June 24. 15 cts.

**Ozone Water Purification Plant at Lindsay, Ont.** Illustrated, 2 pp., Contract Record, May 26. 10 cts.

**Filtration and Purification of Water for Public Supply—Ozone.** Illustrated, 6 pp., Water, June 15. 20 cts.

**Iron Removal Plant at Dover, N. H.** Illustrated, 1 p., Engineering Record, June 19. 10 cts.

**Analyzing water for Bacteria Contents, Standard Methods of.** By S. D. Gage. Illustrated, 1-2 p., Engineering News, June 10. 15 cts.

**Maintenance of Water Pipe in Chicago, System in Methods of making repairs and extensions of distribution system. Forms employed and cost accounting. Testing gate valves.** By Roy S. Spalding. Illustrated, 5 pp., Municipal Journal and Engineer, June 2. 10 cts.

**Management, Water Works.** Demand for business methods. 1-2 p., Municipal Journal and Engineer, June 2. 10 cts.

**Rates for Water Service.** By D. H. Maury. 4 pp., Midland Municipalities, May. 10 cts.

**Consumption of Water, National.** 1 1-3 pp., Water, May 15. 20 cts.

**Meters and Meter Rates.** Paper before American Water Works Association. By W. Volkhardt. 2-3 p., Water and Gas Review, June. 20 cts.

**Franchise of Elkhart, Water.** Principal sections of a contract between the city and the Elkhart Water Co. 2 1-2 pp., Municipal Journal and Engineer, June 2. 10 cts.

## STREET LIGHTING AND ELECTRIC POWER

**Street Lighting Arches in Manchester.** Illustrated, 2-3 p., Municipal Journal and Engineer, June 23. 10 cts.

**Up-to-Date Street Lighting in Aurora, Ill.** 1 p., Electrical Review, June 12. 10 cts.

**Street Lights.** New York Edison Company's Exhibit at the Conference on City Planning. Illustrated, 1 1-2 p., Electrical Review, June 19. 10 cts.

**St. Louis to Improve its Street Lighting.** Illustrated, 1 p., Electrical Review, June 26. 10 cts.

**Ornamental Curb Line Illumination.** Paper before Iowa Electrical Association. By D. F. Fradette. Illustrated, 2 pp., Electrical Review, June 5.

**Costs, Electrical Street Lighting.** 1-4 p., Municipal Journal and Engineer, June 30.

**Comparing Prices of Street Lighting.** 1-4 p., Municipal Journal and Engineer, June 23. 10 cts.

**Municipal Lighting in Holyoke and Owensboro.** 1 p., Municipal Journal and Engineer, June 23. 10 cts.

**Municipal Street Lighting Plant.** By Alton D. Adams, 1 p., Municipal Engineering, June. 25 cts.

**Unit of Light, New International.** 1 2-3 pp., Electrical Review, June 19. 10 cts.

**Underground Conduit Systems for Electrical Distribution.** By Sidney W. Ashe. Illustrated, 2 pp., Electrical World, June 17. 10 cts.

**Recent Improvements in Underground Conduit Construction.** By B. S. Way. Illustrated, 2 pp., Electrical World, June 17. 10 cts. Illustrated, 2 1-2 pp., Electrical Review, June 19, 10 cts. Illustrated, 1 1-2 pp., Electric Railway Journal, June 19. 10 cts.

**Construction of Telephone Conduits.** By G. E. Rakes. Illustrated, 1 p., Canadian Municipal Journal, June. 10 cts.

**Gas, High-Pressure.** 1 p., Electrical Review, June 12. 10 cts.

**High-Pressure Gas in Berlin.** 1 p., Electrical Review, June 26. 10 cts.

**Sulphur in Coal Gas.** Cause of its presence, quantities, objections, legal restrictions. By Alton D. Adams. 1 1-3 pp., Municipal Journal and Engineer, June 9. 10 cts.

**Hydro-Electric Power in Canada.** By C. B. Smith. Illustrated, 38 pp., Proceedings American Society Civil Engineers, May. 50 cts.

**Cedar River Power Development of Seattle, Wash.** By L. T. Zimmerman. Illustrated, 3 1-3 pp., Engineering News, June 17. 15 cts.

**Sioux Falls Hydro-Electric Development.** By Simpson Rice. Illustrated, 7 pp., Power, June 22. 5 cts.

**The Susquehanna River as a Source of Power.** Paper before Engineers' Club of Central Pennsylvania. By M. D. Pratt. Illustrated, 2 pp., Engineering News, June 10. 15 cts.

**Steam Electric Power Plants, Design of.** By Frank Koester. Illustrated, 3 pp., Electrical Review, May 29. 10 cts.

**A Twenty-Thousand Horse-Power German Municipal Steam Turbin Plant.** By F. C. Perkins. Illustrated, 1 1-2 pp., Canadian Engineer, June 4. 10 cts.

**Design and Requirements of Electrical Power Works.** Paper before Institution of Municipal Engineers. By Horace Boot. Illustrated, 3 1-2 pp., Surveyor, May 28. 20 cts.

**Peat, Light and Power from.** 1-4 p., Municipal Journal and Engineer, June 16. 10 cts.

**Central Station Electric Lighting Company, Future Requirements of.** By

Philip Torchio. Paper before National Electric Light Association. 2-3 p., Engineering News, June 10. 15 cts.

**Profitable Limits of Central Station Distribution.** 2-3 p., Engineering Record, June 12. 10 cts.

## FIRE AND POLICE

**High-Pressure Fire Streams.** 1 1-2 pp., Fireman's Herald, June 5. 5 cts.

**Public Water Supply for Fire Extinguishing.** Paper before Association of Water Engineers. By C. W. S. Oldham. 1 p., Contract Journal, June 15. 20 cts.

**Duplex High-Pressure Fire Protection System for a Portion of New York City.** 1-2 p., Engineering News, June 3. 15 cts.

**San Francisco, Fire Protection for.** Auxiliary fire system. Construction details. High-pressure system. Electric pumps. Reservoirs and distribution systems. Illustrated, 4 pp., Municipal Journal and Engineer, June 16. 10 cts.

**New Orleans, Fire Hazard.** 2-3 p., Fire and Water, June 23. 10 cts.

**Firemen, New Conditions for.** 1-2 p., Fireman's Herald, June 12. 5 cts.

**Reinforced Concrete as a Fire Proof Building Material.** Paper before National Fire Protection Association. By L. C. Watson. 3 pp., Cement Age, June. 15 cts. 2 pp., Concrete, June. 15 cts. 1 p., Engineering-Contracting, June 2. 10 cts. 1 1-2 pp., Canadian Engineer, June 11. 10 cts.

## GOVERNMENT AND FINANCE

**Commission Idea, Spread of the.** In operation in six States and under consideration in several more. By Ernest S. Bradford. 1 1-2 pp., Municipal Journal and Engineer, June 23. 10 cts.

**Business Manager in Staunton, Va., a Municipal.** By E. S. Bradford. 2 pp., Pacific Municipalities, May. 10 cts.

**Elections, Simplify the.** Address before the Civic League of St. Louis. By Woodrow Wilson. 3 pp., Albany Citizen, June. 10 cts.

**Political and Moral Freedom, A City's Struggle for.** By J. D. Works. 4 pp., Arena, March-June. 25 cts.

**Little Old New York.** History of alleged extravagance and graft of city administrations. By James Creelman. Illustrated, 24 1-2 pp., Pearson's, July. 10 cts.

**Publicity Periodicals, Municipal.** 1-2 p., Municipal Journal and Engineer, June 9. 10 cts.

**Public Utilities, Control of Municipal.** By R. O. Brennan. 2 pp., Midland Municipalities, May. 10 cts.

**Profit Sharing in Public Utilities.** By W. H. Winslow. 2 pp., Midland Municipalities, May. 10 cts.

**Difficult Problems Which Public Utilities Commissions Are Endeavoring to Solve.** By H. C. Abell. 2 pp., American Gas Light Journal, June 28. 10 cts.

**Contributory Negligence.** Its bearing on proceedings when damages are claimed for highway accidents. Meaning of ordinary care. By H. C. Lake. 1 1-2 pp., Municipal Journal and Engineer, June 23. 10 cts.

**Municipal Bonds as an Investment.** By John B. Stanton. 2 pp., Pearson's, July. 10 cts.

**Municipal Bond Sales During May.** 1 1-4 pp., Municipal Journal and Engineer, June 23.

**Accounts and Methods, New York City's Revision of.** By H. D. Force. 7 pp., Journal of Accountancy, May. 25 cts.



## TRAFFIC AND TRANSPORTATION

**Chicago**, Review of Track Elevation in. Illustrated, 3 pp., Engineering News, June 3. 15 cts.

Reconstruction of Street Car Tracks in Chicago. By George Weston. Illustrated, 3 pp., Electric Railway Journal, June 26. 10 cts.

Report on a Proposed Subway System for Street Cars and Elevated Railways in Chicago. Illustrated, 2 pp., Engineering News, June 3. 15 cts.

**Subway** Bridge Loop, New York Progress on the. Illustrated, 2 pp., Engineering Record, June 26. 10 cts.

Construction of Rapid Transit Passenger Subways Reducing the Cost and Increasing the Earning Power. 1 p., Engineering News, June 3. 15 cts.

**Accounts**, System of, for Street and Interurban Railways Prescribed by Wisconsin Railroad Commission. 2 pp., Electric Railway Journal, June 12. 10 cts.

**Valuation** of Street Railway Properties. 2 1-2 pp., Electric Railway Journal, June 19. 10 cts.

**Railway Car**, Novel Street. By P. W. Price. Illustrated, 1 p., Engineering News, June 17. 15 cts.

**Mexico City Tramways**, Construction and Operating Features of the. Illustrated, 8 pp., Electric Railway Journal, June 15.

## STRUCTURAL MATERIALS

**Cement**, Setting of Portland. Methods of regulation described. Paper before Concrete Institute. By H. K. D. Bamber. 2 pp., Surveyor, June 4; 2 pp., June 18; 20 cts. 1 1-3 pp., Contract Journal, June 9. 20 cts.

The Setting of Portland Cement and Its Regulation. 2 1-3 pp., Engineering Record, June 26. 10 cts.

**Mortars**, Effect of Calcium Alluminates on. Abstract of paper before Franklin Institute. By H. S. Spackman. 1 1-3 pp., Engineering Record, June 12. 10 cts.

**Concrete** Mixing and Handling Plant. Illustrated, 2 pp., Engineering Contracting, June 23. 10 cts.

Dangers of Breeze Concrete. Paper before Society of Architects. 2 pp., Surveyor, April 30. 20 cts.

Fireproof Qualities of Concrete and Other Building Material. 2 pp., Municipal Engineering, June. 25 cts.

Washer for Concrete Aggregates. Illustrated, 2-3 p., Engineering Record, June 26. 10 cts.

**Reinforced Concrete**. 1 p., Fire and Water, June 9. 10 cts.

Hearing on Reinforced Concrete in the Revision of the New York Building Code. 1 1-2 pp., Engineering News, June 10. 15 cts.

Reinforced Concrete in the Proposed New Building Code of New York City. 2-3 p., Engineering-Contracting, June 23. 10 cts.

Experiments on the Electrolysis of Reinforced Concrete. Paper before Engineering Club of St. Louis. By A. S. Langsdorf. Illustrated, 2 pp., Chemical Engineer, June. 25 cts.

## BRIDGES

**Bridge**, Ft. Snelling. Illustrated, 1 1-2 pp., Engineering Record, June 26. 10 cts.

Rocky River Bridge, Cleveland, O. By Stanley McMichael. Illustrated, 2 pp., Cement World, June. 15 cts.

Edmundson Avenue Bridge, Baltimore. Illustrated, 1 1-2 pp., Engineering Record, June 10. 10 cts.

Replacing the Cuyahoga Valley Viaduct, Cleveland, O. Illustrated, 3 pp., Engineering Record, June 5. 10 cts.

The Webster-Donora Bridge. Illustrated, 1 1-2 pp., Engineering Record, June 12. 10 cts.

Twelfth Street Bridge, Philadelphia, Pa. Illustrated, 1-2 p., Engineering Record, June 12. 10 cts.

The Tees Transporter. Illustrated, 1 p., Municipal Journal, June 4. 15 cts.

**Concrete Bridge**, An Elastic Arch. Illustrated, 1 1-2 pp., Engineering Record, June 26. 10 cts.

The Sinlunkaba (Burma) Ferro-Concrete Bridge. Paper before Society of Engineers. By W. E. Haldwell. Illustrated, 3 pp., Contract Journal, June 16. 20 cts.

**Arches**, Stability of. Paper before Civil and Mechanical Engineers' Society. By Henry Adams. Illustrated, 3 1-2 pp., Canadian Engineer, May 28. 10 cts.

Computation of a Reinforced Concrete Arch Rib with Fixed Ends for a Proposed Twelfth Street Bridge at Oakland, Cal. By A. W. Miller. Illustrated, 6 pp., Engineering-Contracting, June 2. 10 cts.

**Floor Slabs**, Separate, for Short-Span Concrete Bridges. 1-3 p., Engineering Record, June 26. 10 cts.

**Viaduct**, Highland Boulevard, Milwaukee. Illustrated, 2 pp., Engineering Record, June 12. 10 cts.

## MISCELLANEOUS

**Garbage Reduction** at Vincennes. Construction details. Method of operation, terms of contract. 2 3-4 pp., Municipal Journal and Engineer, June 9. 10 cts. Illustrated.

**Incineration** Plant at D'Ixelles. 2 pp., La Technique Sanitaire, June. 50 cts.

Garbage Site Plants. 1-4 p., Municipal Journal and Engineer, June 16. 10 cts.

**Smoke Prevention** or Smoke Consumption. By H. V. Coes. Illustrated, 11 pp., The Engineering Magazine, June. 25 cts.

**Markets**, Construction of City. References to literature. 1-4 p., Municipal Journal and Engineer, June 16. 10 cts.

**City Planning** Congress Committee. 1-4 p., Municipal Journal and Engineer, June 23. 10 cts.

Practical Side of City Planning. 1-4 p., Municipal Journal and Engineer, June 9. 10 cts.

German Town Planning. As seen by Housing Reform Council of England and as described by F. L. Olmsted before the Conference on City Planning at Washington. 1 1-2 pp., Municipal Journal and Engineer, June 30. 10 cts.

Town Planning. The visit to Germany. 1-3 p., Surveyor, May 28. 20 cts.

Residence Courts or Parks. Illustrated, 1-4 p., Municipal Journal and Engineer, June 23. 10 cts.

**Civic Committee** at Grand Rapids. 1-4 p., Municipal Journal and Engineer, June 30. 10 cts.

**Tree Planting**, Advice on. 1-4 p., Municipal Journal and Engineer, June 9. 10 cts.

**Building Code** for New York, New. 1-2 p., Fire and Water, May 26. 10 cts.

Proposed New Building Codes in New York City. 2-3 p., Engineering News, June 10. 15 cts.

**Infirmary**, A Children's. The first great hospital for sick poor-law chil-

dren of London. Illustrated, 1 p., Municipal Journal, May 21. 15 cts.

**Technical High School**, The Cleveland. By H. W. Woodward. Illustrated, 5 1-2 pp., Power, June 1. 5 cts.

**Dock Improvements**, Baltimore's Municipal. By W. H. Stone. Illustrated, 2 1-2 pp., Manufacturers' Record, May 27. 15 cts.

**Pier**, Santa Monica's Municipal. Illustrated, 1 p., Municipal Journal and Engineer, June 30. 10 cts.

**Breakwater** in the Harbor of San Pedro, Cal. By L. C. Breed. 1 p., Municipal Engineering, June. 25 cts.

**Piles**, Concrete. By H. J. Cole. 121 pp., illustrated, Proceedings Am. Soc. C. E., May. 50 cts.

**Culvert**, Building a Concrete, in Freezing Weather. Illustrated, 2-3 p., Engineering-Contracting, June 9. 10 cts.

**Inspectors** of Concrete Work, Hints for. 1 1-3 pp., Engineering-Contracting, June 9. 10 cts.

**Traverse Work** in Connection with the Triangulation of the Borough of the Bronx, with Special Reference to Accurate Measurement with Tapes. Paper before Municipal Engineers, city of New York. By E. H. Holden. 2 1-2 pp., Engineering-Contracting, June 2. 10 cts.

**Drafting Machine**, Improved. Illustrated, 2 pp., Engineering News, June 3. 15 cts.

**Calculator** for the Discharge of Fluids from Pipes, Channels and Culverts, Essex. Illustrated, 3 pp., Water, June 15. 20 cts.

**Accidents**, Industrial, and Employers' Liability. Illustrated, 2 pp., Engineering News, June 17. 15 cts.

**Formulae** in Structural Engineering, Essential. Paper before Institution of Municipal Engineers. By Horace Cubitt. 5 pp., Surveyor, April 30. 20 cts. Illustrated, 5 pp., Canadian Engineer, May 28. 10 cts.

**Engineering Education** and the Men It Produces, Comments on Our. Lecture before Engineering Club, University of Illinois. By W. D. Taylor. 1 1-2 pp., Engineering News, June 10. 15 cts.

**Engineering Profession**, Organization of the. Paper before Civil and Mechanical Engineers' Society. By R. O. Wynne-Roberts. 1 1-2 pp., Surveyor, May 28. 20 cts.

**Municipal Works** of Malvern. By W. O. Thorpe. Illustrated, 9 pp., Surveyor, June 4; 11 pp., June 11; 20 cts. 3 pp., Contract Journal, June 2. 20 cts.

Recent Improvements in the Town of Verdun. By Henry Hadley. Illustrated, 2 pp., Canadian Municipal Journal, June. 10 cts.

Doncaster and Some of Its Municipal Work. Paper before Association of Municipal and County Engineers. By F. O. Kirby. 1 p., Surveyor, May 28. 20 cts.

The Making of Bournemouth, England. Illustrated, 2 pp., The Municipal Journal, June 11. 15 cts.

Seattle, A Metropolis Built in a Single Generation. By R. A. Ballinger. Illustrated, 7 pp., Review of Reviews, June. 25 cts.

**Rothenburg** the Picturesque. Popular description of picturesque features. By Robert Haven Schaffler. Illustrated, 11 pp., Century, July. 35 cts.

**Paris**, Shrines and Monuments of. By Perley Poore Sheehan. Illustrated, 12 pp., Munsey, July. 10 cts.



## NEWS OF THE SOCIETIES

**Society for the Promotion of Engineering Education.**—The seventeenth annual meeting was held at Columbia University, New York, N. Y., and Pratt Institute, Brooklyn, N. Y., June 24-26. Prof. E. V. Huntington, of Harvard, presented a progress report on the teaching of mathematics to engineering students. He gave a brief account of the proceedings of a conference between engineers and teachers of mathematics held at Chicago last November, which was to the effect that mathematics should be taught with greater care in order that the student may obtain a clearer understanding of methods and meaning of his work. Dean Frederick E. Turneaure, University of Wisconsin, presented the annual address on "Present Tendencies in Technical Education." He spoke in favor of modifying the standard four-year course in engineering schools by offering courses of different lengths varying from three to six years. Logan W. Page presented a paper which made a plea for the teaching of highway engineering in the schools. Charles B. Going read a paper on "The Relation of Engineering Education to Industries." He favored a closer association of the faculty with outside practice. In the discussion of this paper Frederick W. Taylor advocated the practice of encouraging students after the freshman year to serve for a year in a shop under actual industrial conditions. The general sentiment seemed to be that it would be better to trust to gradual development rather than revolutionize the system now prevailing. Professor Louis E. Reber, University of Wisconsin, described the correspondence instruction that institution is now carrying on. Professor Charles Derleth, University of California, and Professor Robert Fletcher, Dartmouth, spoke in favor of six-year engineering courses. Professor Constant, University of Minnesota, described the practical operation of the five-year course now offered by that university. President A. C. Humphreys, Stevens Institute, expressed himself strongly in favor of the present five-year course. Professor George F. Swain, of the graduate engineering school, Harvard University, said that longer periods of study are now necessary because there is so much more to learn. Dean M. E. Cooley, University of Michigan, presented data regarding the nature of positions held and salaries received by graduates. The following officers were elected for the ensuing year: President, Henry S. Monroe, Columbia University; secretary, H. H. Norris, Cornell University.

**Michigan Gas Association.**—The eighteenth annual meeting will be held in a novel way. A steamship will be chartered, leaving Detroit September 14, which will sail by way of Lake Huron to Sault Ste. Marie, and return by way of St. Mary's River to Mackinac Island. The boat will return to Detroit on the 16th. Sessions will be held on board, and the following papers will be presented: "How We Sold Our Surplus Coke," Glen R. Chamberlain, Grand Rapids Gas Light Company; "Studies in Coal Distillation," A. H. White, John H. Lyman and William A. Dunkley, University of Michigan; "Retort Benches," A. S. B. Little, St. Louis, Mo.; Report of Cooperative Illuminating Gas Tests, as submitted by Perry Barker, formerly Assistant Engineer, United States Geological Survey.

**City Solicitors of Ohio.**—At Columbus, June 23, City Solicitors from all parts of the State met at the request of Attorney-General U. G. Denman for the purpose of discussing and interpreting the ambiguities of the Paine law. This act provides for a complete change in the system of city government in Ohio. In fact, it reverts to the old Federal plan making the Mayor the sole power and fixing for him a cabinet. After hours of debate the solicitors were about where they began. They did adopt motions showing what the sense of the association was in the interpretation of the act, but that was about all. A motion was put through to appoint a committee to ask the Attorney-General that he bring action immediately after August 1, when a part of the law becomes effective, so that the Supreme Court might pass upon the proper construction. The Attorney-General said that he had received the committee, but was undecided just what kind of an action can be brought. He will do this within a few days, and it will be either quo warranto or mandamus, but as to how he will proceed he is unable to say now. The act appeared in the discussions to be a local issue. The most important question was whether by the operation of the law Mayors would have the power to turn out all employees of the safety department. The consensus of opinion, and based mostly upon Attorney-General Denman's construction, was that they would. Before, however, the stage was arrived at where the whole matter was left to the courts, the solicitors decided that the law, as it relates to safety boards, goes into effect on August 1; that a director of public service is not chosen by Mayors at that time, as the law plainly says, but that this official shall be named on January 1 and at that time the board of control, composed of the Mayor and both directors, becomes effective.

It was the sense of the association that the civil service rules prevail from August 1 to January 1. It is pointed out, however, that this is inconsistent with the law. At present the civil service commission is lodged with the department of safety. On August 1 this board is abolished and loses such powers, and not until January 1 do the president of council, president of the school board and the president of the sinking fund commission meet and appoint a civil service board.

Mayors must, August 1, appoint chiefs of the police and fire departments, because the civil service commission—the board of safety—has been abolished. There is no appeal should he discharge the heads of both of these departments. It is left then for the Mayors to name chiefs of both departments, who can suspend both policemen and firemen to his liking. As to boards of service, Attorney-General Denman says that the law will not affect them until the first of the year. For this reason it will not hinder the awarding of contracts for improvements. In fact, the Attorney-General declares that he will stand by his opinion, rendered some time ago. The Attorney-General also says that it will require a number of actions to be brought in court to properly bring out a construction of the law. It was stated by several of the solicitors present that if the Attorney-General would not bring the action it is bound to come from some other source, and just as soon as some of the Mayors begin a reorganization, according to the views of the officials.

**Pacific Northwest Society of Engineers.**—The society will hold its seventh annual convention in the Good Roads Building, Exposition Grounds, Seattle, Wash., July 8-10. The following papers will be presented: "The Mineral Industry of the Pacific Northwest," presidential address, by Milnor Roberts, Dean of the School of Mines of the University of Washington; "Submarine Torpedo Boats," by Frank W. Hibbs, past-president, Pacific Northwest Society of Engineers; "Flow of Water Through Wood Pipes," by Theron A. Noble, North Yakima, Wash.; "Seattle Regrades," by R. H. Thomson and J. C. Jeffery, past-presidents, Pacific Northwest Society of Engineers.

**Conference of County Superintendents of Good Roads.**—All of the counties except two were represented at the conference in the Town Hall, Saratoga, N. Y. The Superintendents and Commissioner were welcomed to the Springs by the Village President, and the response was made by Mr. Diehl. The meeting discussed the methods of organizing their work by the County Superintendents. It was voted to appoint four committees to work under the State Highway Commission. The committees are to consist of nine members, one from each town road division, taking up the subjects of bridges, legislation, machinery and State road construction. The committee on bridges is to work for a uniform system of bridges throughout the State, reinforced concrete on State and county roads and bridges strong enough to carry steam road rollers on the town crossroads. The committee on machinery is to work to secure uniform prices for good roads machinery in every county and town of the State. County Superintendent Albert O. Smith of Suffolk is chairman of the committee on bridges, and County Superintendent Charles M. Hilton of Rockland County is chairman of the committee on legislation. The members of the committees were selected by the County Superintendents' meeting by town highway districts. Each of the districts also had a State Supervisor of Highways to act in an advisory capacity. The County Superintendents were taken by automobiles to Albany, studying en route the various types of good road construction in the vicinity, including a road surfaced with liquid asphalt, a road underdrained for quicksand and a road improved with sand. Also, the Superintendents saw patrol systems in operation. The conference reassembled at the Hotel Kenmore in Albany, where the old County Engineers' Association, consisting of all of the old County Engineers, was disbanded. It was voted by the new County Superintendents to form no organization beyond the appointment of the committees named, and not to elect officers, but to continue as an adjunct of the State Highway Commission.

**League of American Municipalities.**—At the 13th annual convention, Montreal, Can., August 25-27, the following topics will be discussed: "Municipal Charter Making," by Clinton R. Woodruff, Philadelphia, Pa.; James G. Riddick, Norfolk, Va., and S. J. Hay, Dallas, Tex.; "Regulation and Control of Local Public Service Corporations by State Boards," by Louis Betz, City Comptroller of St. Paul, Minn., and Charles D. Huston, City Commissioner in charge of the Department of Streets and Public Improvements of Cedar Rapids, Ia.

**International Association for the Prevention of Smoke.**—On the last day of the convention at Syracuse, N. Y., H. M. Wilson, Chief Engineer of the Technology Branch of the United States Geological Survey, spoke on "Fuel Economy and Smoke Prevention." He said that no greater step in the conservation movement of the United States could be taken than the utter suppression of the smoke nuisance in our great cities. The evil is one of the great dangers of modern times, insidiously taking the health of the individual, lowering his vitality, increasing the death rate and causing untold injury to property. The damage which smoke inflicts every year in the United States amounts to more than \$600,000,000 in the destruction of merchandise, the defacement of buildings, the tarnishing of metals, the injury to plant life and the greatly increased labor and cost of housekeeping. In the great and middle-sized cities more than 30,000,000 people live, and those suffer all the loss which is shown in the total of \$600,000,000. The statement is based upon estimates made by Chicago, with \$50,000,000 loss a year; Cleveland, O., with perhaps \$4,000,000, and a number of other cities. It means a per capita loss of \$20 a year to every man, woman and child in these cities. But this is not the most serious phase of the question. The smoke nuisance means uncleanness, poverty, wretchedness, disease and death. Minneapolis was chosen as the place for the convention the last week in June, 1910. O. T. Higgins, of Syracuse, was elected president; C. A. B. Byrne, of Minneapolis, vice-president; R. C. Harris, Toronto, Ont., secretary-treasurer.

**American Society of Civil Engineers.**—The forty-first annual convention of the society is now in session at the Mt. Washington Hotel, Bretton Woods, N. H. All of July 8 will be devoted to an excursion, and the third session of the convention will be held at 8 o'clock in the evening. There will be two discussions, the first on "Fire Resistant Construction in Buildings" and the second on "Impurities in Sand for Concrete," the first to be opened by Herbert M. Wilson and the second by Sanford E. Thompson. The last business meeting will be held at 8 o'clock p. m., July 9, and the reception and ball at 9:30 o'clock the same evening.

### Calendar of Meetings

July 5-9.  
**Pacific Northwest Society of Engineers.**—Annual Meeting, Seattle, Wash.—A. H. Dimmock, Secretary, City Hall, Seattle, Wash.  
July 5-9.  
**Minnesota Firemen's Tournament Association.**—Annual Tournament, Crookston, Minn.  
July 6-9.  
**American Society of Civil Engineers.**—Annual Convention, Mount Washington Hotel, Bretton Woods, N. H.—Charles Warren Hunt, Secretary, 220 West 57th street, New York, N. Y.  
July 6-8.  
**South Carolina State Firemen's Association.**—Convention and Tournament, Union, S. C.—R. S. Hood, Secretary, Sumter, S. C.  
July 6-9.  
**North Carolina State Firemen's Association.**—Convention and Tournament, Asheville, N. C.—John J. Miller, Secretary, Concord, N. C.  
July 13-15.  
**Ohio Electric Light Association.**—Fifteenth Annual Convention, Toledo, O.—D. L. Gaskill, Secretary, Greenville, O.  
July 15-16.  
**American Society of Heating and Ventilating Engineers.**—Summer Meeting, Indianapolis, Ind.—W. M. Mackay, Secretary, P. O. Box 1818, New York, N. Y.

July 20-22.  
**Texas Mayors' Association.**—Annual Convention, San Angelo.—Mayor F. C. Highsmith, President, Mineral Wells, Tex.  
August 11-13.  
**National Firemen's Association.**—Convention, Lansing, Mich.—P. B. McCarty, Secretary, P. O. Box 600, St. Louis, Mo.  
August 17-20.  
**New York State Firemen's Association.**—Convention and Parade, Poughkeepsie, N. Y.—Thomas Holohan, Secretary, Frankfort, N. Y.  
August 17-20.  
**International Association of Fire Engineers.**—Annual Convention, Grand Rapids, Mich.—James McFall, Secretary, Runoake, Va.  
August 25-27.  
**League of American Municipalities.**—Thirteenth Annual Convention, Montreal, P. Q., Canada.—John MacVicar, Secretary, Des Moines, Ia.  
August 25-27.  
**Virginia State Firemen's Association.**—Convention and Tournament.—G. C. Cumming, Secretary, Portsmouth, Va.  
September 7-10.  
**Pacific Coast Association of Fire Chiefs.**—Convention, Seattle, Wash.—W. H. Bringham, Secretary, Seattle, Wash.  
September 8-10.  
**New England Water Works Association.**—Annual Convention, New York City.—Willard Kent, Secretary, Narragansett Pier, R. I.  
October 5-7.  
**Pennsylvania State Firemen's Association.**—Convention, Oil City, Pa.—W. W. Wunder, Secretary, Reading, Pa.  
November 9-11.  
**American Society of Municipal Improvements.**—Annual Convention, Little Rock, Ark.—A. Prescott Folwell, Secretary, 241 W. 39th St., New York, N. Y.  
November 15-19.  
**National Municipal League.**—Annual Meeting, Cincinnati, O.—Clinton Rogers Woodruff, Secretary, 705 North American Building, Philadelphia, Pa.

### PERSONALS

ANDERSON, Lieut. W. T., Washington, D. C., has been promoted to the position of Captain of Police and put in charge of the new Eleventh Precinct, in Anacostia. William H. Harrison has been promoted to Lieutenant.

BAKER, W. F., New York City, N. Y., has been appointed Police Commissioner by Mayor George B. McClellan; he was First Assistant under Commissioner Bingham, and had charge of Brooklyn headquarters.

BAKER, R. L., Chicago, Ill., formerly instructor in experimental engineering at the University of Wisconsin, has entered the service of Mr. A. Bement, Consulting Engineer, of Chicago, Ill.

BENSEL, DR. WALTER, New York, N. Y., Sanitary Superintendent, has been nominated by President Taft to be First Lieutenant in the Medical Reserve Corps of the U. S. Army.

BINGHAM, GEN. THEODORE A., Police Commissioner of New York, N. Y., has been removed from his position by Mayor George B. McClellan because he declined to make certain changes ordered by the Mayor.

ERICSON, JOHN E., City Engineer, Chicago, Ill., has been knighted with the order of Vasa by King Gustav V. of Sweden.

FLOY, HENRY, New York, N. Y., has been retained by Bion J. Arnold in connection with the appraisal of the properties of the Metropolitan Street Ry., the Third Avenue Street Ry., and the Brooklyn Rapid Transit Co., New York City, which Mr. Arnold is making for the Public Service Commission of the First District.

FRENCH & HUBBARD, Boston, Mass., have been appointed Consulting Engineers for the heating, ventilating, electrical work and plumbing of the new municipal buildings to be erected in Springfield, Mass.

FURLOW, D. B., South Pasadena, Cal., has resigned as City Trustee.

HALEY, JOHN C., Washington, D. C., Frederick Y. Donn and Henry S. McAuley have been appointed Sanitary and Food Inspectors, under the new act of Congress.

HEARD, J. N., Logansport, La., has been elected Mayor.

HILL, GEORGE, Glenwood, Fla., has been elected City Engineer of Deland, Fla., by a unanimous vote of Council, over nine opponents.

HOPKINS, STEPHEN U., New York, until recently Assistant Engineer for the New York Public Service Commission, First District, has become Consulting Engineer of the United Engineering & Construction Co., 620 Lumbermen's Bldg., Portland, Ore.

HORTON, HERBERT M., Sanitary Engineer, of Hornell, N. Y., died June 23.

KENNEDY, GEORGE H., Youngstown, O., has resigned as Councilman-at-Large to become a patrolman.

LEACH, FRANK A., Director of the U. S. Mint, with headquarters at Washington, D. C., has been elected president of the People's Water Company of Oakland, Cal.

LEAVITT, THOMAS, Boston, Mass., has been appointed a member of the Board of School House Commissioners, succeeding James B. Noyes, who becomes a Transit Commissioner.

MARSHALL, U. S., Sacramento, Cal., has been appointed City Engineer of Roseville, Cal.

MELL, FRED K., Perry, Ia., former Chief of the Fire Department, was struck and killed by lightning June 24.

NICHOLS, JOHN L., Knoxville, Tenn., has been elected Chief of Police to succeed W. P. Chandler.

NOYES, JAMES B., Boston, Mass., has been appointed a member of the Boston Transit Commission, succeeding the late Thos. J. Gargan.

ONLY, A. H., Portsmouth, Va., and James M. Broughton have been promoted Captains of the Police Department from Lieutenant, in accordance with a new ordinance, the salary being \$75 per month.

PARKS, J. C., Brockton, Mass., Captain of the Fire Department, died June 21.

RALEIGH, WILBUR C., Assistant City Engineer of Tacoma, Wash., has been appointed as City Engineer, to succeed his late Chief, Frank L. Davis.

ROBERTSON, T. B., Eastville, Va., has been elected Mayor, and A. W. Bradford, J. H. Kellam, J. A. Jarvis, O. F. Mears, A. Saunders and C. W. Bradford as members of Town Council.

ROBINSON, CHARLES MULFORD, Rochester, N. Y., is laying out plans for the improvement of Ft. Wayne, Ind.

SEABORN, WALTER J., Deputy Town Clerk of Berkeley, Cal., has been elected Town Clerk; he is but 25 years of age.

SHARP, DAVID B., Columbus, O., has been made Attorney for the State Fire Marshal's Department by the new Fire Marshal, John W. Zieber.

SPEER, VICTOR, Buffalo, N. Y., Secretary to Mayor Adam, died June 27.

TRIBUS & MASSA, New York, N. Y., Consulting Engineers, announce that they have taken into association Charles Robert Bettes and John Turner Fetherston. Mr. Bettes is a specialist in water works and sewerage and Mr. Fetherston in the final disposal of city waste.

VEALEY, J. A., new Chief of Police of Missoula, Mont., has assumed his duties.

WILLIAMS, FRANK M., Albany, N. Y., New York State Engineer and Surveyor, has been elected chairman of the Commission on Barge and Canal Terminals.

WILLCOX, EDWARD, Norfolk, Va., has been appointed License Inspector to succeed the late F. H. Lewis. Mr. Willcox is now secretary of the Industrial Commission.



## THE WEEK'S CONTRACT NEWS

Relating to Municipal and Public Work—Street Improvements—Paving, Road Making, Cleaning and Sprinkling—Sewerage, Water Supply and Public Lighting—Fire Equipment and Supplies—Bridges and Street Railways—Sanitation, Garbage and Waste Disposal—Police, Parks and Miscellaneous—Proposals and Awards

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we can not guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also corrections of any errors discovered.

## BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
<b>STREET IMPROVEMENTS</b>				
New York	New York	July 8, 3 p.m.	Furn. 10,000 bbls. emulsion road oil for Manhattan parks.	Henry Smith, Pres. Park Bd.
Pennsylvania	Wilkes-Barre	July 8	Grading and macadamizing 2 miles of Myrtle rd., Hanover twp.	H. C. Mason, 802 Coal Exchange.
Indiana	Fort Wayne	July 8	Paving portions of 3 sts., 5-ft. cement walks on 2 sts.	H. W. Becker, Clk. Bd. Pub. Wks.
Maryland	Berlin	July 8	Grading and macadamizing 1 mile of Shovel road.	J. Edw. White, Clk. County Comrs.
Ohio	Lima	July 8, noon	Resurfacing Spring st. with asphalt, block, bitulithic, etc., \$1,000 check; brick paving, etc., 4 sts., \$700 check.	L. L. Crumrine, Sec'y Bd. Pub. Serv.
New Jersey	Newark	July 8, 2 p.m.	Grading and paving with bituminous telford, River rd., Nutley.	Wallace Ougeltree, Dir. Freeholders.
Ohio	Hicksville	July 8, noon	Paving Main st. with vit. brick or block.	O. P. Bevington, Village Clerk.
New York	Brooklyn	July 8, 3 p.m.	Macadam paving, grading, etc., Bay Ridge Parkway.	Henry Smith, Pres. Park Board.
New Hampshire	Merrimack	July 8	Grading and surfacing, with gravel, one mile of road.	A. W. Dean, State Engr. Concord.
Ohio	New Middletown	July 9, 1 p.m.	Bldg. macadam and brick road, Springfield twp.	L. W. School, Clk. Spring'd Twp. Trus.
Indiana	Kokomo	July 9, 10 a.m.	Bldg. 15,840 ft. gravel road, Howard and Clinton County line.	A. B. Easterling, County Auditor.
Utah	Salt Lake City	July 9, 4 p.m.	Bldg. 40 miles new sidewalks; cost, \$263,333.	L. C. Kelsey, City Engineer.
New Jersey	Elizabeth	July 9, 2:30 p.m.	Bldg. stone road with second course of Amiesite, 9,982 ft. x 16 ft.	F. J. Hubbard, County Engineer.
Ohio	Cincinnati	July 9, noon	Improving roads, Anderson, Colerain and Sycamore twps.	Stanley Struble, Pres. Co. Comrs.
Connecticut	Bridgeport	July 9, 8 p.m.	Furn. st. paving brick to lay 2,550 sq. yds. permanent pavement	A. V. Hartley, Chm. Com. Sts. & Sewks
Ohio	Cincinnati	July 9, noon	Brick paving, limestone curb, grading 2 sts.; \$3,500 bond.	John J. Wenner, Clk. Bd. Pub. Serv.
New York	Watertown	July 9, 8 p.m.	Brick or block or Medina sandstone block on conc., 4,500 sq. yds.	E. W. Sayles, City Engineer.
Pennsylvania	Narberth	July 10	Resurfacing 45,000 sq. yds. and 9,000 sq. yds. new macadam.	F. H. Harjes, Chm. Hwy. & Sew. Com.
Ohio	North Lima	July 10, noon	Paving North Lima and Boardman road.	E. Mentzer, Township Clerk.
Ohio	Dalton	July 10, noon	Improving Main st. from village line to prop. of Peter Kuren, Sr.	C. W. Horn, Village Clerk.
Iowa	Fort Dodge	July 12	Brick paving, 5,478 sq. yds.; cement curb, 2,452 lin. ft.	King E. Beal, City Clerk.
Minnesota	Ada	July 12	Constructing part of State road.	D. E. Fulton, County Auditor.
New Jersey	Paterson	July 12	Grading and macadamizing with oil binder certain roads.	Geo. W. Boddy, Clk. Bd. Freeh'drs.
Indiana	Jeffersonville	July 12, 11 a.m.	Bldg. crushed stone road, 3.20 miles long.	Peter Nacharl, County Auditor.
Pennsylvania	Harrisburg	July 12	Reconstructing road in Hempfield twp., Moreland Co.	Jos. W. Hunter, State Hwy. Com.
New York	Newburgh	July 12, 5 p.m.	Brick paving, 4,600 sq. yds., reset curbs, etc., Broadway; \$14,700	W. J. Blake, Jr., City Engineer.
Minnesota	Glencoe	July 12, 1 p.m.	Grading and graveling 5 state highways.	F. D. Stocking, County Auditor.
California	Woodland	July 12	Improving Ann st., Washington; also half mile of road.	Board of Supervisors.
New Jersey	Camden	July 12, 11 a.m.	Bldg. stone road, 2 1-2 miles long; 14 ft. wide of Amiesite or asphalt macadam; 4,494 cu. yds. excav.; 18,459 sq. yds. paving; 1,560 sq. yds. cobble-gutter; 500 ft. under drains.	J. J. Albertson, County Engineer.
Ohio	Youngstown	July 12, noon	Material to improve road in Dist. No. 1, in county.	Road Comrs., Dollar Bank Bldg.
Delaware	Dover	July 12, 8 p.m.	Asphalt, brick or bitulithic paving; curbing, gutters, etc., estimate \$200,000; check, \$5,000; C. L. Watson, C.E.	Wm. H. Walker, Pres. St. & Sew. Com.
Indiana	Brazil	July 12	Constructing 9,074 miles gravel road in Township 12.	James L. Burnes, County Auditor.
Illinois	Upper Alton	July 12, 8 p.m.	Tar macadam pavement, 13,985 sq. yds.; conc. curb, 8,725 ft.	Bd. of Local Improvements.
Massachusetts	Lynn	July 13, 5 p.m.	Laying 10,000 sq. yds. smooth pavement, with specifications.	Charles H. Ramsdell, Chm. B. P. W.
New York	New York	July 13	Asphalt block paving, 59,555 sq. yds.; flagging, 28,350 sq. ft.	Louis F. Haffen, Pres. Boro. Bronx.
Ohio	Steubenville	July 13, noon	Paving State road to Mingo, 5,200 ft. long, bldg. retain walls, etc.	Board of County Commissioners.
Indiana	Kokomo	July 13, 2 p.m.	Bldg. Henry E. Farwick et al gravel road on Co. line.	A. B. Easterling, County Auditor.
Pennsylvania	Williamport	July 13, noon	Furn. bridge steel, beams, etc., planks, etc., and laying same.	A. P. Zuber, Clk. Co. Comrs.
New Jersey	Freehold	July 14, 11 a.m.	Bldg. gravel road in Shrewsbury and Wall townships.	E. E. Throckmorton, Co. Engr.
Ohio	Cleveland	July 14, 11 a.m.	Grading, draining, paving Gardner road in Euclid twp.	Wm. F. Black, Clk. Co. Comrs.
Ohio	Piqua	July 14, noon	Brick, tarvia, wood block, or other paving, etc., 5 streets.	W. B. Mitchell, Clk. Bd. Pub. Serv.
New York	Catskill	July 14, 8 p.m.	Brick paving 4,703 sq. yds. Main and Bridge sts., 2,200 ft. bluestone curb.	J. Henry Wessel, Pres. Vil. Trus.
Oklahoma	Edmonds	July 14, 5 p.m.	Grading, sidewalk and guttering, Dayton st.	Geo. M. Leyda, City Clerk.
Ohio	Kennedy Hts.	July 15	Macadamizing and laying cement walks, Ridgway and Fern avs.	O. W. Bennett, Clk. Vil. Council.
Alabama	Birmingham	July 15	Paving streets in business section.	Maury Nicholson, City Engineer.
Tennessee	Elizabethton	July 15	Macadamizing sts. to cost \$15,000; bldg. \$15,000 sewers.	E. C. Cass, City Recorder.
Alabama	Gadsden	July 15	Paving and improving sts., any material.	W. M. Wilson, City Engineer.
New York	New York	July 15, 3 p.m.	Furn. and delivering 1,000 bbls. emulsion road oil, Prospect Park	Henry Smith, Pres. Park Board.
Kansas	Pt. Riley	July 15, 10 a.m.	Constructing about 17,000 sq. ft. concrete walks.	Capt. W. M. Whitman, Q. M.
Wisconsin	Oshkosh	July 15, 2 p.m.	Brick paving Main st., cement or stone curb and for grading and paving with cedar block So. Main st.	Board of Public Works.
Indiana	Huntington	July 15	Grading, graveling or macadamizing 2 highways.	John W. Weaver, Co. Auditor.
Pennsylvania	Pittsburg	July 16, noon	Bldg. road 4.04 miles long Forward twp.; 4.12 miles N. Vers.	Geo. T. Barnsley, Co. Road Engr.
North Dakota	Grand Forks	July 16, 10 a.m.	Grading and repaving 4 miles of County road.	Hans Anderson, County Auditor.
Indiana	Scottsburg	July 17, 11 a.m.	Bldg. 13,195 ft. gravel road in Jennings and 10,580 ft. in Johnson township.	Frank Gardner, County Auditor.
Ohio	Orrville	July 17, noon	Brick paving and curbing 1-2 mile of road.	Bd. Comrs. Wayne Co., Wooster.
Ohio	Ottawa	July 17	Bldg. Levi Hummon road; 6,744 cu. yds. crushed stone, 27,000 ft. 4 to 8-in. farm tile, etc.	J. T. Maidlaw, Co. Engr.
Ohio	Columbus	July 19	Paving bridges and approaches; also subway.	F. M. Sayre, County Auditor.
South Dakota	Aberdeen	July 19	Brick, asphalt and creosoted block paving, several streets.	F. W. Raymond, City Auditor.
Indiana	Bedford	July 19, 1 p.m.	Bldg. 3 macadam roads; 6,920; 10,453 and 13,900 ft. long.	W. G. Owens, County Auditor.
New Jersey	Somerville	July 19, 11 a.m.	Macadamizing 3,600 ft. of road in Warren twp.	Thos. E. Gibson, Dir. Bd. Freeh'ders.
Washington	Spokane	July 19	Grading, curbing, parking, sidewalks, Wall st.	J. T. O'Brien, Sec'y Bd. Pub. Wks.
Ohio	Cincinnati	July 19, noon	Excav., grading, concrete work, etc., Westwood School.	C. W. Handman, Bus. Mgr. Bd. Educ.
Delaware	Wilmington	July 20	Bldg. stone road with macadam Amiesite or tar surface.	F. A. Price, State Hwy. Comr.
Ohio	Columbus	July 23, noon	Resurfacing Potter pike, 3,165 ft. long; 1,050 tons crushed limestone; 400 tons screenings; also 3,000 ft. Chillicothe pike; 1,200 tons crushed limestone and 360 tons screenings and 16,000 gals. tarvia X.	F. M. Sayre, County Auditor.
Ohio	Norwalk	July 23	Improving 1 1-4 miles road at Havana, Norwich twp.	L. C. Herrick, County Surveyor.
Ohio	Cincinnati	July 23, noon	Treatment of Montgomery pike in 3 townships.	Fred. Drehs, Clk. County Comrs.
West Virginia	Kenova	July 26, 6 p.m.	Brick or block paving, 28,254 sq. yds. 4-in. concrete; concrete curb and gutter, 19,000 lin. ft. and 1,600 ft. margin curb.	W. M. Venable, C.E., Charleston
Ohio	Hamilton	July 27, 10 a.m.	Resurfacing High and Main st. bridge with crec. block.	J. E. Brate, County Auditor.
Texas	Galveston	July 31, noon	Brick paving, concrete curbing and sidewalks, Ft. Crockett.	Capt. John C. Oakes, U. S. Engr.
New Jersey	Morristown	Aug. 2	Macadamizing 3 roads for county.	Gustave A. Becker, Dir. Freeholders.
Indiana	Hartford City	Aug. 3, 1 p.m.	Grading, draining, limestone paving, 35,775 lin. ft. road.	W. Lea Smith, Auditor, Jay County
<b>SEWERAGE</b>				
New Jersey	Newark	July 8, 2 p.m.	Laying 1,450 ft. stoneware pipe in Irvington.	James Owen, County Engineer.
New York	New York	July 8, 2 p.m.	Material and labor for bldg. sewer, etc., W. 150th st., 8th ave. to river.	John F. Ahearn, Pres. Boro.
Ohio	Hamilton	July 8, noon	Material and labor for bldg. stone sewers in 5 sts.	Chr. Pabst, Sec'y Bd. Pub. Service.
Wisconsin	Delavan	July 8	Bldg. Akron salt-glazed pipe sewers in 6 or more streets.	F. D. Cowles, Chm. Com. on Sts. and Public Works.
Kentucky	Louisville	July 9, noon	Bldg. Sec. B. So. Louisville Branch sewer, Contract No. 45.	J. B. F. Breed, Chief Eng'r Sew. Com.
New Mexico	Albuquerque	July 10	Constructing sewers; furnishing material, etc.	S. M. Gray, C.E., Providence, R. I.
Delaware	Dover	July 12	Bldg. trunk sewers, paving, curb, gutters; see Proposals.	Wm. H. Walker, Pres. St. & S'r Com.
Pennsylvania	Glassport	July 12, 8 p.m.	Bldg. 4-ft., 2-ring brick sewer; also 24, 18 and 12-in. t. c. sewers.	M. E. Randall, Boro. Sec'y.
North Dakota	Grand Falls	July 12, 5 p.m.	Bldg. lateral sewer, etc., 3 sts.; brick rein. conc. or rein. pipe.	W. H. Alexander, City Auditor.
Ohio	Dayton	July 12	Bldg. stone sewers in Wayne ave. and Wyoming st., 20-12-in. pipe	J. C. Ely, Pres. Bd. Pub. Service.



## BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
SEWERAGE—Continued				
Indiana.....	Gary.....	July 12.....	Constructing local sewers Nos. 8 and 9.....	Thos. E. Knotts, Chm. Town Trust
New York.....	New York.....	July 13.....	Bldg. sewer, 3 sts.; drain and relief drain, one st. each.....	Louis F. Haffen, Pres. Boro. Bronx.
California.....	Oakland.....	July 14, 11 a.m.....	Material and labor for bldg. storm sewer in Harrison st.....	W. B. Fawcett, Sec'y Bd. Pub. Wks.
Emmettsburg.....	Iowa.....	July 14, 1 p.m.....	Building joint improvement ditches.....	Sim R. Stedman, County Auditor.
Tennessee.....	Elizabethton.....	July 15.....	Bldg. \$15,000 sewer system; macadam paving, \$15,000.....	E. C. Cass, City Recorder.
Kentucky.....	Louisville.....	July 16, noon.....	Bldg. 19th st. sewer, Cont. 46: 2,770 ft. pipe and concrete sewer, 20-33-in. diam. in 6-12-ft. trench, inc. 325 cu. yds. concrete.....	J. B. F. Breed, Ch. Engr. Sew. Com. Board of Public Works.
Indiana.....	Kokomo.....	July 16, 10 a.m.....	Extending Danner sewer to Crawford extension.....	Lt. W. J. Hawkins, Q.M.
New Jersey.....	Fort Hancock.....	July 16.....	Bldg. sewer outlet at Fort Hancock.....	Bd. Trustees, Miami University.
Ohio.....	Oxford.....	July 17, noon.....	Furn. material and laying sewerage connections, Miami Univ.....	Harry J. Clark, City Clerk.
Indiana.....	Shelbyville.....	July 20, 6 p.m.....	Bldg. sanitary trunk sewer system.....	
Kentucky.....	Louisville.....	July 23, noon.....	Bldg. Sec. D. N. W. Sewer, Cont. 48: 4,320 ft. rein. concrete sewer, 6 ft. and 6 ft. 3 inches in 18 to 21-ft. trench, inc. 2,350 cu. yds. concrete, and 259,000 lbs. of steel; H. P. Eddy, Boston, Mass., C. E.....	W. C. Nones, Chm. Sewer Com. B. H. Welch, City Clerk.
Kansas.....	Kingman.....	Aug. 2.....	Constructing sewers in District No. 1.....	
WATER SUPPLY				
New York.....	West Carthage.....	July 9, 6 p.m.....	Laying 3 1-2 miles 8 and 10-in. c. i. pipe, building head works and stand pipe foundation for water works extension.....	W. A. Porter, Pres. Village Trustees.
California.....	Newman.....	July 10, 4 p.m.....	Furn. and erecting steel tower 100 ft. high and steel tank, 100,000 gals. capacity; rein. concrete reservoir, 100,000 gals.; laying 5,000 ft. 4-in. and 1,000 ft. 6-in. pipe; Chas. E. Sloan, Cons. Eng'r.....	E. S. Wangenheim, Pres. W. W. Co. M. E. Moe, Clk. Bd. Pub. Affrs.
Ohio.....	Logan.....	July 10, noon.....	Furn. material and extending water system; \$1,000 bond.....	Metropolitan Water and Sewer Board.
Massachusetts.....	Boston.....	July 12, 2:30 p.m.....	Laying 3,900 ft. 16-in. and 12,300 ft. 24-in. c. i. pipe in 3 towns.....	Water Board.
Oregon.....	Portland.....	July 12.....	Furnishing 5,000 water meters; contract rescinded.....	J. H. Twitchell, City Clerk.
Minnesota.....	Hastings.....	July 12.....	Furn. material and bldg. sewers and water mains in 4th and 5th streets.....	Matt T. Duerre, County Auditor.
Minnesota.....	Wabasha.....	July 12.....	Furn. mat. and bldg. water pressure system for Court House.....	Board of Water Commissioners.
Massachusetts.....	Braintree.....	July 14, 2 p.m.....	Furn. and laying 8,600 ft. 8-in. c. i. water pipe, hydrants, specials, etc.; carry pipe over or under N. Y., N. H. & H. R. R.....	F. G. Ward, Com'r Pub. Wks.
New York.....	Buffalo.....	July 14, 11 a.m.....	Excav. brick and iron work for 2 pipe tunnels at pump station.....	
New York.....	New York.....	July 14, 2 p.m.....	Furn. and install 2 dir.-con. elec.-driven, vert. pump engines, complete, inc. electric lights, in pump station for sewage disposal plant at Mt. Kisco.....	John H. O'Brien, Com'r W., S., G. & E.
New York.....	Brooklyn.....	July 14, 2 p.m.....	Furn. del. and laying water mains, 4th ave. and 1st st., Bklyn.....	John H. O'Brien, Com'r W., S., G. & E.
Georgia.....	Moultrie.....	July 14.....	Furn. c. i. pipe, 429 tons, 3, 6, 10-in., 10 tons specials; 46 hydrants and 34 valves and boxes, rein. concrete tower and tank and pumping engine for ext. w. w. system; H. S. Jaudon, Box 582, Savannah.....	W. D. Scott, Mayor.
Kansas.....	Osage City.....	July 15.....	Constructing water works plant to cost \$8,000.....	Burns & McDonnell, Engrs., Scarritt Bldg., Kansas City, Mo.
Ohio.....	Delta.....	July 15, noon.....	Bldg. municipal water plant with deep wells as source of supply and 5 1-3 miles 4-10-in. c. i. pipe; Riggs and Sherman Co., Engrs., 613 The Nasby Bldg., Toledo.....	W. C. Hoch, Clk. Bd. Pub. Affairs
Kentucky.....	Newport.....	July 15, noon.....	Furn. material and labor for 5,000,000-gal. vert. high-duty pump, engine, laying 13,050 ft. 20-in. c. i. pipe, inc. specials, etc.; steel stand pipe on steel-braced tower; John W. Hill & Sons, Engrs., First National Bank Bldg., Cincinnati, Ohio.....	Commissioners of Water Works.
Colorado.....	Fort Collins.....	July 16, noon.....	Bldg. 4,000,000-gal. slow sand or mechanical filtration plant.....	Robert S. Fiddler, City Clerk.
Ohio.....	Pleasant Hill.....	July 17.....	Constructing water works; A. C. Reed, Civil Eng'r.....	Dr. A. J. Bauman, Clk. Bd. Pub. Affrs.
California.....	Madera.....	July 19.....	Bldg. complete municipal water supply system.....	F. E. Smith, Town Engineer.
Dist. of Col'bia.....	Washington.....	July 19.....	Furn. machinery for central pumping station and 3 pumping units for hydraulic excavating and sluicing, including pumps and motors, engines, boilers, etc.....	Purchasing Agt., Isthmian Can. Com.
Utah.....	Salt Lake City.....	July 19.....	Bldg. North Temple st. aqueduct across 3 streets.....	L. C. Kelsey, City Engineer.
New York.....	New York.....	July 20, 11 a.m.....	Furn. two 12,500,000 steam turbo-turbine pumps, two 225 h.p. water tube boilers and all accessories at Jerome ave. pump sta. Bldg. 3,000,000-gal. mech. filtration plant of concrete.....	Board of Water Supply.
New Jersey.....	Burlington.....	July 26, 3 p.m.....	Bldg. 3,000,000-gal. mech. filtration plant of concrete.....	George A. Allinson, Supt. W. W.
Arkansas.....	Clarendon.....	Aug. 2, 2 p.m.....	Driving an 8-in. artesian well; C. H. Jenks, C. E.....	Guy Murphy, Impvt. Dist.
Louisiana.....	Pt. St. Philip.....	Aug. 2.....	Constructing water works and a sewer system.....	Capt. Louis F. Garrard, Jr., U. S. A.
BRIDGES				
New Jersey.....	Newark.....	July 8, 2 p.m.....	Extending stone arch and Baker st. bridges, bldg. culvert.....	James Owen, County Auditor.
Mississippi.....	Hazlehurst.....	July 8.....	Bldg. steel or cable bridge over Homochitto river.....	M. E. Ford, Bd. Co. Supervisors.
Minnesota.....	Minneapolis.....	July 8.....	Erecting iron and steel superstructure for bridge over river.....	Board of County Commissioners.
South Dakota.....	Plankinton.....	July 8, 2 p.m.....	Bldg. 3 steel truss bridges on stone abutments.....	C. E. Archer, County Auditor.
West Virginia.....	Barboursville.....	July 8, noon.....	Bldg. iron and steel superstructure for highway bridge over Guyandotte river.....	Cabell County Commissioner.
North Dakota.....	Fargo.....	July 8.....	Bldg. 5 new bridges, 140, 130, two 100 and 20 ft. long; repair 5.....	Arthur G. Lewis, Co. Auditor.
Pennsylvania.....	Butler.....	July 9.....	Bldg. 4 steel bridges, 3 concrete subs. and one masonry.....	Board of County Commissioners.
Quebec.....	Metapedia.....	July 9, 4:30 p.m.....	Bldg. highway approaches to proposed bridge.....	Sec'y Dept. Pub. Wks., Ottawa.
Rhode Island.....	Burrillville.....	July 9, 6 p.m.....	Bldg. rein. concrete girder bridge with retaining walls, approaches and parapet walls over river for town.....	John P. Meade, Chm. Com. on Plans.
Maine.....	Eden.....	July 10, 2 p.m.....	Bldg. causeway or bridge from Bar Harbor to Bar Island.....	Town Selectmen of Eden.
Indiana.....	Shelbyville.....	July 10, 10 a.m.....	Bldg. concrete bridge at Rushville pike crossing.....	G. B. Hinliger, County Auditor.
Virginia.....	Leesburg.....	July 10.....	Bldg. 47 ft. iron or concrete bridge over Tuscarora creek; also 53 ft. iron bridge over creek nr. Ashburn; 2 abut. for each.....	T. E. Little, Chm. Co. Comrs.
Idaho.....	Hailey.....	July 10.....	Constructing bridge over Aubrey creek.....	Board of County Commissioners.
North Dakota.....	Valley City.....	July 10.....	Constructing steel bridge over Cheyenne river.....	C. W. Nelson, County Auditor.
Wisconsin.....	Elcho.....	July 12, 2 p.m.....	Constructing stone abutments under Port Lake bridge.....	Chas. Beard, Chairman.
Indiana.....	South Bend.....	July 12, 11 a.m.....	Bldg. 8 concrete I-beam bridges and 8 rein. concrete culverts.....	John W. Harbou, County Auditor.
Massachusetts.....	Haverhill.....	July 12.....	Bldg. southerly approach to Hav. co. bridge; cost, \$25,000.....	Board of County Commissioners.
Pennsylvania.....	Williamsport.....	July 13, noon.....	Furn. 145,300 ft. bridge plank yellow pine or white oak before Aug. 15; also removing old and laying new floors, 2 bridges.....	A. P. Zuber, Clk. County Comrs.
Oklahoma.....	Frederick.....	July 13.....	Bldg. 4 combination bridges: 40-ft. span with two 20-ft. approaches, two 30-ft. spans, 10-ft. approaches, 30-ft. span.....	John B. Darden, County Clerk.
Illinois.....	Danville.....	July 14, 1 p.m.....	Bldg. steel bridge over Little Vermilion river, 80 ft. c. to c., concrete abutments, 2,530 cu. yds. approach grading, 40 ft. 44-in. c. i. pipe, Fisher & McCann, Engrs., Garrett Bldg.....	S. K. Van Fleet, Clk. Bd. Co. Comrs.
Minnesota.....	Red Wing.....	July 14, 7:30 p.m.....	Bldg. riveted 90-ft. through span steel bridge, concrete abut.....	E. C. Erbe, Pres. Bd. Pub. Wks.
Illinois.....	Chicago.....	July 14, noon.....	Furn. metal work for super. of 3 hwy. bridges over No. Shore Chan.....	I. J. Bryan, Clk. Sanitary Dist.
Oklahoma.....	Durant.....	July 14.....	Bldg. superstructure of 55 ft. steel bridge nr. Matoy.....	J. M. Abbott, Chm. County Comrs.
Washington.....	Bellingham.....	July 16, 2 p.m.....	Removing draw bridge to new channel of Nooksack river at Marietta, bldg. wing dams, approaches, etc.; also new pile bridge in place of drawbridge over old channel.....	Alex. Van Wyck, County Auditor.
Ohio.....	New Philadelphia.....	July 19.....	Bldg. rein. concrete arch bridge making fill, and approaches over Tuscarawas river, Warwick twp.; cost, \$35,298.....	A. V. Donahey, County Auditor.
Ohio.....	Columbus.....	July 19.....	Extending substructure of bridge, raising and paving surface, etc.....	F. M. Sayre, County Auditor.
California.....	Los Angeles.....	July 19.....	Bldg. rein. concrete arch viaduct: 2 abut. and 6 piers, supporting 7 spans 969 ft. long, 70 ft. wide; 465 found. piles, 283 tons steel reinforcing, 14 trusses, 585 ft. long, 18,240 cu. yds. concrete, 1,199 sq. yds. concrete surface, 18,260 cu. yds. arch filling.....	H. B. Ferris, Sec'y Bd. Pub. Wks.
Ohio.....	Cambridge.....	July 20, 11 a.m.....	Iron or steel bridge to span Wills Creek, Byesville, masonry sub. Bldg. 95 ft. span steel bridge, also 40-ft. span bridge.....	Bd. County Comrs., Guernsey Co.
Pennsylvania.....	Kittanning.....	July 20.....	Bldg. r. r. bridge of 3 plate girders, each 75 ft. span, with concrete piers and abutments, etc., at State University.....	John A. Black, Chm. Co. Comrs.
Ohio.....	Columbus.....	July 21, noon.....	Bldg. 3 concrete bridges and one concrete viaduct.....	Clyde T. Morris, C. E., State Un. Trus.
Ohio.....	Cleveland.....	July 21.....	Bldg. pile foundation for culvert at sta. 152, Col. twp.....	Wm. F. Black, Clk. County Comrs.
Ohio.....	Cincinnati.....	July 23, noon.....	Bldg. pile foundation for culvert at sta. 152, Col. twp.....	Fred. Driebs, Clk. County Comrs.

## BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
<b>BRIDGES—Continued</b>				
Maine.....	Clinton.....	July 27, noon.....	Bldg. bridge 600 ft. long in 3 spans; sub and super. separate....	E. E. Greenwood, Skowbegan.
Ohio.....	Hamilton.....	July 27, 10 a.m.....	Repairing bridge on Spring Grove ave., Mill creek twp.....	Fred. Dreih, Clk. County Comrs.
Ohio.....	Cincinnati.....	July 28.....	Furn. designs, detail plans, etc., for several bridges.....	Board of Park Commissioners.
Minnesota.....	Minneapolis.....	Sept. 1.....		
<b>LIGHTING AND ELECTRICITY</b>				
New York.....	Buffalo.....	July 10.....	Furn. and installing underground cables for Police and Fire Depts., in connection with burial of wires in districts where overhead wires must be removed.....	F. G. Ward, Comr. Pub. Wks.
Dist. Columbia.....	Washington.....	July 10, 11 a.m.....	Furn. one 1,000 & two 1,500 k.w. turbo-alternators, navy yard.....	Admiral R. C. Hollyday, Navy Dept.
Pennsylvania.....	Philadelphia.....	July 10, 11 a.m.....	Furn. motor generator sets, exciter switchboard, etc., \$17,500.....	R. C. Hollyday, Nav. Dept., Wash., D.C.
Minnesota.....	Shakopee.....	July 13.....	Furn. 50-h.p. generator for the electric light plant.....	C. J. Welland, City Recorder.
New York.....	Mt. Kisco.....	July 14.....	Furn. and install, dir.-con. elec. driven, vert. pumping units, etc. inc. electric lighting installation, in sewage pump. station.....	J. H. O'Brien, Comr. W. S. G. & E. New York City.
Ohio.....	Rathbone.....	July 16, 1 p.m.....	Furn. and erecting electrical machinery, wiring, conduits, etc., changes and additions in steam-heating, piping, trenching and conduits, Girls' Industrial Home.....	T. F. Dye, Secy. Trus. Indus. Home.
South Dakota.....	Pierre.....	July 28.....	Furn. and install. electric fixtures at new Capitol bldg.....	John Hirning, Secy. Capitol Com.
Kentucky.....	Cynthiana.....	Aug. 2, noon.....	Lighting sts., alleys and public places for 6 or 10 yrs. from Apr. 1, 1910, with 40 or more arcs or 90 or more 40 c.-p. incandescents; light for all and every night or dark nights only; further information of W. W. Van Doren.....	W. M. Moore, Chm. Finance Com.
Manitoba.....	Winnipeg.....	Aug. 2, 11 a.m.....	Bldg. and erecting hydraulic electric and auxiliary equipment of municipal generating station on Winnipeg River.....	H. N. Ruttan, City Engineer.
Manitoba.....	Winnipeg.....	Aug. 16.....	Five 3,000 k.w. generators, two 250 k.w. generators, etc.; six step-up transformers; light, heat, and power systems; protective apparatus; 3 electric traveling cranes; auxiliary apparatus Smith, Kerry & Chace, Engrs., Toronto, Ont.....	M. Peterson, Secy. Bd. Control.
<b>MISCELLANEOUS</b>				
Virginia.....	Lynchburg.....	July 8.....	Franchise for street railway in 17th and other streets.....	G. W. Smith, Mayor.
Wisconsin.....	Haywood.....	July 8, 2:30 p.m.....	Erecting County jail and sheriff's residence.....	Jens Jorgenson, Clk. Sawyer Co.
California.....	Oakland.....	July 9, 11 a.m.....	Furn. and hiring to city equipment and men for sprinkling streets for one year to June 30, 1910.....	W. B. Fawcett, Secy. Bd. Pub. Wks.
New Jersey.....	Paterson.....	July 9, 8 p.m.....	Erecting new fire engine house; Wm. T. Fanning, Architect.....	Wm. A. Hopson, Chm. Fire Dept. Com.
Ohio.....	Dayton.....	July 10.....	Levee riprap on Great Miami river and Wolf Creek, requiring 1,065 cu. yds. each of concrete riprap, dry limestone riprap and limestone riprap with mortar joints.....	W. A. Budroe, Clk. Bd. Pub. Serv.
Tennessee.....	Memphis.....	July 10.....	Erecting 2 story brick annex to City Hospital.....	James H. Malone, Mayor.
New York.....	Phelps.....	July 12.....	Erecting new village building.....	Fred. Helmer, Village Clerk.
Massachusetts.....	Holyoke.....	July 12.....	Automobile 4 cylinder, two seats, removable tonneau.....	J. E. Sheldon, Water Commissioner.
New Jersey.....	Hoboken.....	July 12, 2 p.m.....	Furn. first-size steam fire engine, water tube engine; also 75 ft. aerial hook-and-ladder truck with self-raising device; also 1,500 ft. 2 1/2-in. fire hose, coupled.....	D. A. Haggerty, Clk. Fire Comrs.
New York.....	Albany.....	July 13, noon.....	Contracts A, B, C and D, No. 20 and No. 23, Erie Canal.....	F. C. Stevens, Supt. Pub. Wks.
New York.....	Brooklyn.....	July 14.....	Rebldg. 6 fire escapes, each 4 1/2 stories high, L. I. Hospital.....	T. E. McGarr, State Lun. Com. Alby.
Ohio.....	Columbus.....	July 15, noon.....	Bldg. concrete retaining wall, Contract No. 18, inc. 800 cu. yds. excav., 765 cu. yds. loam, 1 acre seeding, 220 sq. yds. sodding, 800 cu. yds. concrete, 2,000 lbs. twisted steel rods.....	E. W. Hirsch, Secy. Bd. Pub. Serv.
Ohio.....	Columbus.....	July 21, noon.....	Bldg. rr. 1 1/4 miles long, rr. bridge of 3 deck plate girders, each 75 ft. span, concrete piers and abutments; bldg. equipment of Vet. Clinic, Bldg. at State University.....	Carl E. Steeb, Secy. Trus. State Univ.
Uruguay, S. A.....	Montevideo.....	July 28.....	Furn. 2,400 canvas uniforms, for city police; 2,400 pairs leggings, 4,000 blouses for rural police; and 3,200 summer helmets, as per specifications, Cuareim No. 254.....	Fiscal Gen. Insp. of Police, Election Commissioners.
Illinois.....	Chicago.....	Sept. 15.....	Furn. voting machines up to \$400,000 value.....	

## STREET IMPROVEMENTS

**Birmingham, Ala.**—Council is considering the grading, curbing and sidewalk paving on Cleveland st. from Highland to Madison ave.—H. E. Shropshire, Jr., City Clerk.

**Conway, Ark.**—City has decided to lay concrete sidewalks.

**San Jose, Cal.**—The Board of Supervisors has directed the County Surveyor to make surveys and estimates for the improvement of the San Francisco road from the San Mateo County line to San Jose by way of the Alameda; for the road from San Jose via 12th st. to the Alameda County line and for the Monterey road to the San Benito County line; repairs will cost several thousand dollars.

**San Jose, Cal.**—Council is considering the paving of 1st st. and the improvement of the west branch of Market st.

**South Pasadena, Cal.**—The City Trustees are considering the improvement of Maringo ave. from Monterey road to Oak st.

**Yosemite, Cal.**—The Yosemite valley is to have first-class roads; the Government has decided to abolish the dust nuisance which has been the one drawback to travel in California's wonder spot, and, in the near future, the fifteen miles of stage road from El Portal to the Hotel Sentinel will be macadamized, widened and sprinkled.

**Wilmington, Del.**—The New Castle County Levy Court has decided to proceed with the work of building new and improved roads throughout the county, and when the work has been completed the public highways in the northern part of the State will be as fine as any to be found in this section of the country; Highway Commissioner has been instructed to advertise for proposals on several miles of new roads in all sections of the county; Court has at its disposal a special fund of \$300,000 for this work, this fund having been created for the purpose by the last Legislature.

**Macon, Ga.**—Citizens have defeated proposition to issue \$100,000 bonds for the purpose of paving, curbing and improvements; new election will be called.

**Savannah, Ga.**—Chatham County is considering construction of road to Tybee by the way of Wilmington Island.—George T. Cann, County Judge.

**Aurora, Ill.**—Plans are being prepared by City Engineer Tarble for paving Benton st. from LaSalle to State sts., and North ave. from Jackson st. to Broadway.

**Joliet, Ill.**—The Board of Local Improvements has ordered the City Clerk to advertise for bids for the construction of a brick pavement in South Chicago st. from 5th ave. to Duncan st.; estimated cost of the improvement is \$13,330.56, payable in ten annual installments.

**Kenilworth, Ill.**—City will receive bids on 10,000 sq. yds. of reinforcing macadam, using tar or asphaltum binder.—Frank A. Windes, C. E. Winnetka.

**Pekin, Ill.**—Council has decided to lay new concrete curbing around the Court House square.

**Peoria Heights, Ill.**—The Village Board took decided action in the matter of the improvement for Prospect ave. when the Board instructed the Clerk to advertise for bids on the work of hauling crushed stone from the railway to the avenue.

**Peoria, Ill.**—The paving of South 4th st. will begin just as soon as a public hearing can be held and the ordinance passed; Board of Local Improvements has decided to pave South 4th st. from Elizabeth st. to Derby st., and the material used will be vitrified brick with asphalt filler; in the contemplated improvement there are 16,000 sq. yds. of paving and Engineer Van Deusen estimates the cost of the paving at \$1.60 per sq. yd., or \$25,000; then there is \$2,000 for 8,000 ft. of curbing at 25c. per ft., 500 ft. of protecting curbing at the same price per ft., 6,000 cu. yds. of earthwork at 30c., \$1,800, and 6 per cent for court costs, making and collecting the assessment, etc., bringing the total cost up to \$31,296.

**Rockdale, Ill.**—The village will have improved streets; Board has decided that all matters of street improvement should be postponed until a sidewalk ordinance could be prepared and adopted; Street and Alley Committee has been empowered to employ an engineer to prepare a profile for the sidewalk grades.

**Rockford, Ill.**—Council will consider the paving of South Church st. from State st. to Chestnut st. with brick.

**Toluca, Ill.**—City is considering construction of about 70 blocks of 4-ft. cement walk; bids will be received about Aug. 15.

**Waukegan, Ill.**—Council has passed ordinances for constructing cement sidewalks on Seward and Hickory sts.—B. P. Thacker, City Engineer.

**Danville, Ind.**—The Commissioners of Hendricks County are asking for bids for the paving of nine miles of streets in Danville under the three-mile law.

**Elkhart, Ind.**—A petition for the improvement of Franklin st. from 2d st. to the north line of Marion st. with some one of the recognized kinds of standard pavement to a width of 30 ft. between curbs has been filed with the Board of Public Works.

**Evansville, Ind.**—Property owners on Main st., between 1st and 8th sts., have petitioned the Board of Works to order the street paved with the best vitrified brick, with asphalt filler.

**Fort Wayne, Ind.**—The Board of Public Works has adopted resolutions providing for pavement on Runion ave., from Main to High; Miner st. from DeWald to Creighton, and Huestis ave. from Miner to Broadway; a resolution for paving Wildwood ave. from Fairfield to South Wayne has been deferred in order to add additional length of street to the proposal if the property owners desire it; asphalt block, creosoted wood block, vitrified shale block and fire clay block are specified as materials for Runion ave. and Huestis ave.; asphalt, asphalt block, creosoted wood block or vitrified shale block are specified for Huestis ave.; sheet asphalt, asphalt block, creosoted wood block and vitrified shale block are specified for Wildwood ave.

**Indianapolis, Ind.**—The Board of Public Works has ordered the following plans:

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**Indianapolis, Ind.**—The Board of Public Works has ordered the following plans:



Pennsylvania st. from 38th to 42d st., local sewer; Miley ave. from Washington st. to Michigan st., pavement, bitulithic; first alley north of East Washington st. from Drexel ave. to first alley west, brick pavement, and South st. from New Jersey to East st., cement walks.

**Indianapolis, Ind.**—The Board of Works has adopted the following declaratory resolutions: Opening of first alley west of Illinois st., from 37th st. to point 138.6 ft. south of 37th; Denny st., opening from Michigan st. to first alley north of Michigan st., and the vacation of a part of first alley south of Morris st. from point 295 ft. west of Senate ave. to point 365 ft. west of Senate ave.; also confirmed the following improvement resolutions: Alford st., east side, from Roosevelt ave. to 13th st., cement walks; Osage st., from Ohio st. to New York st., paved; first alley south of 31st st., from Dye st. to point four ft. west of first alley east of Northwestern ave.; alleys north and south of Congress ave., from Dye st. to first alley east of Northwestern ave.; 29th st., from Washington boulevard, running south to Washington boulevard, running north, paved; and Washington boulevard, from 28th to 30th, paved.

**South Bend, Ind.**—Specifications have been prepared for asphalt or tar macadam on Notre Dame ave., 25,000 sq. yds.; for paving Webster st. with asphalt, brick, bitulithic or creosoted block, about 5,000 sq. yds.; also for cement walks on Broadway, 6,334 sq. ft.—A. J. Hammond, City Engineer.

**Maquoketa, Ia.**—Council has decided to expend \$30,000 for street improvements.

**Lexington, Ky.**—The City and Lexington Union Station Co. are considering paving of Ayres alley with brick.—P. P. O'Neill, City Engineer.

**Baton Rouge, La.**—The East Baton Rouge parish is considering construction of 10 miles of road; cost between \$12,000 and \$15,000.

**New Orleans, La.**—Council has passed an ordinance providing for the paving of City Park Ave; cost \$175,000.

**Annapolis, Md.**—The State Road Commissioner has rejected all the bids for \$1,060,000 State road bonds, taking the position that these bonds ought to bring par and no less would be accepted for them; prices offered were as follows: Estabrook & Co., Harmanus, Fisher & Co. and Hamilton & Co., joint bid of \$1,011,400 for the whole lot; William A. Read & Co. and the Hamilton National Bank of New York, \$987,554 for the whole lot, and Eldon Co., of Boston, \$98,530 for 200,000 of either series.

**Baltimore, Md.**—Council is considering ordinance for the regrading of Boone st. between North ave. and 22d st.; regrading Homewood ave. between North ave. and 22d st., and regrading Charles st. between Lexington st. and Hamilton st., at a cost of \$16,000.

**Baltimore, Md.**—Council has passed ordinance providing for the paving of North ave., except between the car tracks; cost \$46,000.

**Elkton, Md.**—Cecil County will sell, July 15, \$25,000 road improvement bonds.—J. H. Terrell, Clerk County Commissioners.

**Elkton, Md.**—To carry out the plans adopted last year to permanently improve the public highways in this county the County Commissioners have decided to sell \$25,000 worth of road bonds next month; under a law passed at the last session of the Legislature the Commissioners were authorized to issue \$200,000 in bonds, \$25,000 each year for the next eight years, which, estimating that each mile of road will cost \$8,000, will build 25 miles of modern roads.

**Holyoke, Mass.**—The Board of Public Works has voted to macadamize Elm st. and lay curbing and sidewalks.

**Lynn, Mass.**—On recommendation of the Committee on Streets, an order has been adopted by Council for the paving of Wyoma square, Glenmere square, Village square and Mason st., and Chestnut st. from Union to Olive sts., with Hassam paving.

**New Bedford, Mass.**—Superintendent of Streets Lawton and Mayor Bullock are considering the calling of bids for furnishing the Street Department with granite block pavement; contract will involve an expenditure of something like \$40,000 and will be given out to competitive bidding as the Board of Aldermen directed at its last meeting.

**South Hadley Falls, Mass.**—The cost of building the Glasgow road extension will be about \$8,000, according to the estimate submitted the Selectmen by County Commissioner Davis, of Northampton.

**Bay City, Mich.**—Proposals will be received by the Union School District, July 9, noon, for the construction of certain cement walks at the following buildings, consisting of 3,914 sq. ft. at Lincoln, 2,064 sq. ft. at Dolson, 2,125 sq. ft. at Washington, and 2,000 sq. ft. at McKinley.

**Coldwater, Mich.**—City Engineer Shoecraft has commenced the preliminary sur-

vey for the paving to be done this summer on East Chicago st.

**Grosse Point Farms, Mich.**—Engineer Mason L. Brown, 821 Chamber of Commerce Bldg., Detroit, has prepared plans for constructing 13,000 sq. yd. 7-in. macadam road in Wayne County.

**Hazlehurst, Miss.**—Copiah county will improve roads; \$30,000 bonds are available.

**Bethany, Mo.**—City is considering paving of four streets with vitrified brick, about 8,000 sq. yds. in all—William M. Irwin, Maryville, Engineer.

**Kansas City, Mo.**—City is preparing new plans and specifications for asphalt repair plant; cost \$25,000.

**Lincoln, Neb.**—City will buy an asphalt mixing plant and will repair some of its poor pavements.

**Omaha, Neb.**—Wholesalers and jobbers are behind a proposition to have 16th st. paved with asphalt from Farnam st. to the railroad stations and a petition to the Council for this improvement has already secured a majority of abutters' signatures.

**Collingswood, N. J.**—Final legislation requiring the curbing of Haddon ave. through this borough having been accomplished, notices are to be sent out in a few days ordering property owners to put in curb by a certain time or the borough will do the work and charge it to them.

**Glassboro, N. J.**—The Township Committee has issued specifications and proposals for the laying of cement walks in the town.

**Gloucester, N. J.**—Council has passed finally the ordinance providing for the \$75,000 bond issue for street improvements.

**Lakewood, N. J.**—The village authorities are making the experiment of oiling Ocean ave., the main thoroughfare for automobiles, to see if it will lay the dust. Water has so far proved ineffectual, so frequent is the auto travel. Drivers of motor cars, however, are not so well pleased, as the oiled road makes "skidding" easy.

**Long Branch, N. J.**—Chairman Jackson of the Street Committee will purchase 10,000 gallons of Dustoline for Ocean ave.

**Long Branch, N. J.**—Council is considering the improvement of Hoey ave. from Hollywood ave.

**Newark, N. J.**—In order that traffic may be impeded as little as possible and to expedite the work, the Joint Bridge Committee of the Essex and Hudson County Boards of Freeholders will recommend to their respective bodies in July that the Plank road be rebuilt in three sections; Committee will recommend that that part of the thoroughfare between the Passaic River and Hackensack River bridges be rebuilt first; it is the plan of the Committee that upon the completion of this section the proposed new bridge over the Passaic River be constructed and then the balance of the road west of the Passaic River and east of the Hackensack River be rebuilt.

**Paterson, N. J.**—Notice has been given that it is the intention of the Board of Public Works to construct the following named sewers: In Madison ave. between 8th ave. and 9th ave., about 650 ft. of 10-in. pipe sewer; in East 18th st. between 6th ave. and Franklin st., about 1,100 ft. of 10-in. and 1,200 ft. of 8-in. pipe sewer; in East 32d st. between Park ave. and 17th ave., about 375 ft. of 8-in. pipe sewer, and about 288 ft. of 6-in. house connection pipe; in Bond st. between State st. and Chestnut st., about 200 ft. of 8-in. pipe sewer and 150 ft. of 6-in. house connection pipe, and in Franklin st. between Mercer st. and Graham ave., about 225 ft. of 8-in. pipe sewer and 324 ft. of 6-in. house connection pipe.—John T. Brett, City Street Commissioner.

**Stone Harbor, N. J.**—The Cape May County Board of Freeholders is considering the feasibility of building a new road from Cape May Court House across the meadows; such a road, which would include a drawbridge across Great Sounds, would cost heavily, but the South Jersey Realty Co. is willing to make some outlay of a substantial nature to help the project along and it is believed that under these conditions the Board of Freeholders will take the matter up soon with the purpose of putting the road through.

**Ithaca, N. Y.**—City is considering the relaying of Medina block paving on one street.—Donald F. McLeod, City Engineer.

**Lawrence, N. Y.**—Residents of this village are to have \$50,000, with which to repair, build and pave the streets at this place.

**Watertown, N. Y.**—The Board of Public Works has asked Council for \$200 for improving Keyes ave. from Washington to Mullin st.; plans have been ordered for a curb and gutter in Dimmick st. from Ten Eyck to Mullin st.

**Grand Forks, N. D.**—Council has ordered that plans, specifications and estimates of probable cost be prepared under the direction of the City Council by the City Engineer for paving and repaving of 9,500 sq. yds. on University, International and Alpha aves., from the southwest boundary line of Paving District No. 8 to 3d st.; on 4th st. and 5th st. from northwest boundary line

of Paving District No. 8 to DeMers ave.; Bruce ave. to the southeast boundary line of Paving District No. 8; Kittson ave. from southwest boundary line of Paving District No. 8 to 5th st.; 6th and 7th sts. from the northwest boundary line of Paving District No. 8; Chestnut st. from the southwest boundary line of Paving District No. 8 to 5th st., and on 1st ave. from the southwest boundary line of Paving District No. 8 to 5th st. in Paving District No. 8.

**Grand Forks, N. D.**—Council has ordered bids for the paving of North 4th and North 5th st., from De Mers ave. to Cheyenne ave., this including the intersecting avenues; new territory for which plans of paving were ordered is on north 4th and North 5th sts., from Cheyenne ave. to Griggs ave., a distance of four blocks.

**Akron, O.**—Council has decided to pave streets, as follows: About one mile on Broadway, 1,200 sq. yds. on Spicer st., 1,200 sq. yds. on Kling st., and nearly one mile on Washington st.

**Akron, O.**—President C. B. Raymond of the Akron Chamber of Commerce will call a meeting of citizens interested in good roads next week for the purpose of bringing about the paving of a road from Akron to Brecksville, and improving other roads in Summit County.

**Akron, O.**—Unless enjoined by the residents of the Wooster road the Commissioners will proceed at once with the improvement of the Summit Hill road to Barberton by grading, curbing and paving.

**Ashtabula, O.**—Council has ordered plans and specifications prepared for paving West Prospect st., from West st. to the city limits; distance of one mile; \$27,000 bonds will be issued for paving Oak st. from Lake to High st.

**Barnesville, O.**—Council is considering the paving of Euclid ave. between Chestnut st. and Green Mount Cemetery and North Lincoln ave. from Cherry to High st.

**Bucyrus, O.**—Council has passed ordinances for constructing 26 sidewalks.—John Gebhart, President.

**Bucyrus, O.**—City is considering the paving of Gallion and Mansfield sts. with brick, asphalt and asphalt block or macadam.—T. L. Niederheiser, City Engineer.

**Bucyrus, O.**—Texas Township Trustees opened bids on a \$10,000 issue of pike road bonds, but did not sell them; there was but one bid for the full issue, and that was \$125 below par.

**Canton, O.**—The Board of Public Service is considering the paving of nearly one mile of West Tuscarawas st.

**Columbus, O.**—Bids will be received by the Board of Public Service July 7 for the following improvements: Frankfort st. from Bank st. to Mohawk st., by grading and paving the roadway thereof with hard-burned brick or block, or other substantial material, setting 5-in. curb and constructing the necessary sub-drains; 4th ave. from Summit st. to 4th st.; Mithoff st. from Jaeger st. to Parsons ave.; alley north of Oak st. from Sherman ave. to Wilson ave.; Sullivan ave. from Glenwood ave.; Wales alley from Grant ave. to Washington ave.; Walnut st. from Lucas st. to McDowell st. and Rich st. from the Scioto River to Sandusky st., by grading and paving the roadways thereof with stone block, hard-burned brick or block, or other substantial material, and constructing the necessary sub-drains and catch basins; 5-in. curb. Greenwood ave. from High st. to Front st. by grading and paving the roadways with asphalt, hard-burned brick or block, or other substantial material, setting 5-in. curbs and constructing the necessary sub-drains and catch basins, and Wesley ave. from 5th ave. to 8th ave., by repairing the roadway.—E. W. Hirsch, Secretary.

**Hamilton, O.**—Bids on \$25,000 worth of street improvement bonds have been opened by City Auditor Grimmer; the Rudolph Kleybolte Co., of Cincinnati, bid highest, \$157.50; only one other bid was received, that of the Albert Kleybolte Co. of Cincinnati, \$125; the A. Kleybolte Co. submitted the only bid on \$9,023 High st. resurfacing bonds, bidding \$135; Chris Proschel, city, submitted the only bid on \$1932.80 South 3d st. resurfacing bonds, bidding \$135; he also submitted the only bid on \$1,932.80 South 3d st. resurfacing bonds; his bid was \$26.58.

**Massillon, O.**—The Board of Commissioners, Stark County, will soon advertise for bids for paving with brick one and a half miles of road, 14 ft. wide, with two concrete curbs, reaching from Massillon to Brookfield.—G. S. Sickafosse, County Surveyor.

**Massillon, O.**—Council is considering the improvement of Plum, North Mill and North sts. and Lincoln ave.—M. B. Schultz, Clerk.

**Oakley, O.**—City has awarded \$2,100 street improvement bonds to the Oakley Bank at \$24 premium.

**Upper Sandusky, O.**—The Trustees of Tymochtee Township will sell \$8,500 worth of road improvement bonds July 29.—W. H. Hoffman, Township Clerk.



**Ardmore, Okla.**—The City Commissioners have received six sidewalk petitions.

**Tecumseh, Okla.**—Petitions have been filed with the County Commissioners of Pottawatomie County asking for the creation of a good roads district extending from this place west to the Cleveland County line; it is urged that an election be called for voting bonds to raise the necessary money to complete the work; road sought to be improved is eleven miles in length.

**Albany, Ore.**—City has decided to pave Lyon and other streets.

**Avalon, Pa.**—Proposals will be received by the office of the Borough Engineers July 9, 4 p. m., for the grading, curbing and paving of Harrison ave. from Forest ave. to California ave.—McBride Surveying and Engineering Co., Ltd., Pittsburg, Borough Engineers.

**Canonsburg, Pa.**—Town Council has passed another street paving ordinance, this measure being for the permanent improvement of Jefferson ave. from College st. north to Pitt st.

**Chester, Pa.**—Council is considering the paving of Fulton st. from Front to 5th st. with asphalt or brick.

**Franklin, Pa.**—City Engineer Roess has reported that the estimated cost of grading and paving North Seneca st. from the bridge to the city line would be \$20,000.

**Gallitzin, Pa.**—Council has accepted the bid of the First National Bank of Cleveland for the \$8,000 bonds issued to provide funds for the paving of certain streets.

**Greensburg, Pa.**—Council has refused all the bids for the improvement of Tremont and Highland aves., Urania ave., the alley between Westmoreland and Underwood aves. and the first alley west of Pennsylvania ave. between Pittsburg st. and Otterman st.

**Morrisville, Pa.**—Citizens have voted \$20,000 bonds for street improvement purposes and to acquire the Morris Heights Water plant.

**Pittsburg, Pa.**—Superintendent Sprague of the Bureau of Building Construction has recommended to Director Armstrong that a facing wall ranging from eight to fifteen ft. high be built along the south side of Grant boulevard in order to prevent shale rock from coming in contact with the air and decaying; about \$100,000 is needed for this and other improvements to the road.

**Reading, Pa.**—Council has passed an ordinance providing a \$400,000 loan for street paving and sewers.

**Reading, Pa.**—Council is considering the paving of Poplar, North, 11th and Cedar sts.

**South Bethlehem, Pa.**—Borough Council has instructed the Street Committee to secure vitrified brick for the construction of a trial crossing on Main st. and to keep an account of all expenses connected therewith, the same to be employed as a basis for computation for similar improvements intended.

**West Chester, Pa.**—The autoists of West Chester and vicinity are subscribing to a fund for the improvement of the public highway between West Chester and Paoli, through East and West Goshen and Willistown townships.

**York, Pa.**—Citizens have petitioned to have the bricks torn up and relaid on West Market st. between Hartley st. and the old borough line.

**Providence, R. I.**—Resolution authorizing the Commissioner of Public Works to oil the macadam roadway of a portion of Branch and Douglas aves. west of Veazie st. at a cost not to exceed \$400 has been passed by Council.

**Greenville, S. C.**—Citizens will vote \$300,000 bonds for paving sewers, bridge at foot of Main st. and other improvements; paving material has not yet been decided upon.—W. D. Neeves, City Engineer.

**Chattanooga, Tenn.**—City will soon advertise for bids for paving Greenwood st., Highland Park, Duncan, Chamberlain, Union, Vance and Kirby aves.; all to be paved with chert, with concrete gutters, curbs and sidewalks.—Robert Hooke, City Engineer.

**Morristown, Tenn.**—Citizens of Hamblen County have voted \$200,000 good roads bonds.

**Brownwood, Tex.**—The Brownwood Business Men's Club has appointed a committee to meet with the Commissioners and discuss the building of better roads; County will in a short time be ready to commence building about 80 miles of road in Precinct No. 1, and while the bond issue is being approved the Commissioners and business men are getting together and discussing the best methods to pursue.

**Dallas, Tex.**—Dallas County will vote August 3 on \$100,000 bonds for road and bridge improvements.

**Dallas, Tex.**—Mayor Hay has recommended the sale of \$50,000 street improvement bonds never offered for sale, same to be added to the \$150,000 from taxes for this purpose and to be expended in street improvement during the year.

**Hidalgo, Tex.**—Hidalgo County citizens have voted \$100,000 road and bridge bonds.

**Meridian, Tex.**—Bosque County will soon vote on \$100,000 bonds for the construction of roads and bridges.

**North Yakima, Wash.**—The County Commissioners will soon receive bids for improving a number of roads.

**Puyallup, Wash.**—Property owners along Pioneer ave. have adopted a resolution asking Council to have the avenue paved its entire length inside the city limits—a distance of three miles; it is desired to have the improvement made before summer is over.

**Wheeling, W. Va.**—A concerted effort will be made to have at least a portion of the appropriation to the First Ward for street paving applied to the improvement of the National road, which comes over the hill and into the city at 6th st.; this is one of the small portions of the old road between Wheeling and Elm Grove that is not paved and as it is one of the principal entrances to the city from the east is much traveled.

**Beloit, Wis.**—The plans and specifications known as No. 1 for the repaving of the Central bridge were adopted by the Council on the recommendation of the Bridge Committee, and the Board of Public Works was ordered to advertise for bids.

**Green Bay, Wis.**—City Engineer W. W. Reed has been instructed to establish the grade, prepare the specifications for the curb and gutter and the top dressing for streets which may be paved this season.

**Brandon, Man., Can.**—Tenders will be received by the city for supply of creosote wood paving blocks.

**Burnaby, B. C., Can.**—Ratepayers have approved a by-law to expend \$150,000 on road improvements.

## BIDS RECEIVED AND CONTRACTS AWARDED

**Leeds, Ala.**—Leeds Improvement Co. has awarded contracts to J. M. Sims to grade streets and lay cement sidewalks; cost, \$10,000.

**Oakland, Cal.**—The Ransome Crumney Construction Co. has secured the contract for paving with asphalt 4th ave., for about \$60,000.

**San Jose, Cal.**—Five sealed bids for the contracts for the work of bituminizing the street from 4th st. to the Coyote bridge were opened by a sub-committee composed of Seymour T. Montgomery, Chairman; Frank Cavallero, Mrs. Grace Pavay, M. H. Harris and R. R. Syer and submitted to the property owners; the bids were as follows: S. F. Bennett—Bitumen per sq. yd., 20c.; catch basins, \$20; vitrolithic pipe, 85c.

Warren Improvement Co.—Bitumen per sq. yd., 21c.; asphalt per sq. yd., 21c.; catch basins, \$40; vitrolithic pipe, 75c.

Ransome-Crummey Co.—Asphalt per sq. yd., 16c.; catch basins, \$35; vitrolithic pipes, 70c.

Barber Asphalt Co.—Asphalt per sq. yd., 19½c.; catch basins, \$55; vitrolithic pipes, 65c.

City Street Improvement Co.—Bitumen per sq. yd., 22½c.; asphalt per sq. yd., 22½c.; catch basins, \$30; vitrolithic pipe, 90c.

The contract for the work was let, by vote of the property holders, to the Ransome-Crummey Co., who agree to lay the paving for 16c. per sq. yd., a price considered very low. Representatives of this concern will call, as soon as possible, on the Santa Clara st. property holders and arrange with each for his share of the work by private contract.—Wilt. M. Beggs, Chairman.

**Bridgeport, Conn.**—The Burns Co. received the contract for furnishing the sand and stone and Fletcher & Link the cement order from the Council Committee on Streets and Sidewalks when the bids were opened for furnishing the materials, excepting the brick, for the paving of South Main st. from Atlantic st. to Seaside Park. Both contracts were given to the lowest bidder, the Burns Co. asking 85c. per ton for crushed stone, undelivered, and \$1 per ton upon the work. Fletcher & Link bid \$1.36 per 400 pounds of Pennsylvania-Allen cement.

**Essex, Conn.**—The contract for constructing 4,022 lin. ft. macadam road and 1,700 ft. Telford rd. in Essex has been awarded to Pierson Engineering & Contracting Co., of Bristol, at \$2.24 per lin. ft. for the former and \$2.56 per lin. ft. for the latter.

**Glastonbury, Conn.**—Contract for constructing 5,200 ft. of macadam and telford road in Glastonbury has been awarded to A. D. Ambrosia & Co., at \$1.73 per lin. ft. for the former and \$2.85 for the latter.—J. H. MacDonald, State Highway Commissioner.

**Waterbury, Conn.**—When the bids for the paving of West Main st. from the end of the present paving to the Naugatuck River and of Meadow st. from West Main to Freight st. were opened by the Board of

Public Works it was found that the Connecticut Hassam Paving Co. had been underbid by Field, Barker & Underwood, of Philadelphia. The Philadelphia firm was awarded the contract. Field, Barker & Underwood's bid was \$29,212.50 and the Connecticut Hassam Paving Co.'s bid was \$29,315. City Engineer R. A. Cairns, however, stated that the Mack brick had stood the test better and it was decided to pave the streets with this brick.

**Peoria, Ill.**—D. A. Meyers, the low bidder for paying alley between Perry and Monroe sts., with brick, has been awarded contract at \$982.66.—Geo. F. Simmons, President, Board of Local Improvements.

**Brazil, Ind.**—The Board of Commissioners of Clay County has awarded contracts for constructing the following roads: For 1¼ miles of Fisher rd. in Sugar Ridge and Washington Townships to Lewis Gibbens for \$7,325, and 3 miles of Seigelin rd. in Jackson Township to Hawkins Bros. at \$11,243.

**Frostburg, Ind.**—The contract for paving Ormand st. between Broadway and Monroe sts., with brick, has been awarded to Geo. R. Hoskins, he being the lowest bidder.

**Muncie, Ind.**—The Board of Works, June 17, awarded the contract for paving East Main, South High, East Adams and South Walnut sts. to John Gubbins, of Muncie, for \$14,019.

**Muncie, Ind.**—W. H. Morris, representative of the Western Construction Co. of Lafayette, has signed the contracts for the paving of West Jackson st. from Walnut st. to High, of North Walnut st. from Main to High and West Washington st. from Walnut st. to High. The total cost will amount to \$6,948.89.

The Board of Works has received a remonstrance from the residents of East Adams st. setting forth that they are opposed to the improvement of the street at the expense of the property holders.

**New Albany, Ind.**—The Jefferson County Construction Co.'s figures for the improvement of Market st. between State and Pearl sts. were the lowest according to the decision of the Board of Public Works for the improvement of the square; three bids were received, the other bidders being Charles W. Appleby, of this city, and G. W. Palmer, of Logansport. Under the new law the contract cannot be awarded for ten days to give the resident property holders an opportunity to select the kind of material desired. The only resident property holder on the street who has a voice in the matter is K. Dietz, who is now in Europe.

The Jefferson County Construction Co.'s bid was as follows: Creosote block, \$14.38 and \$14.73 per lin. ft. on either side, according to kind of curbing; asphalt, \$17.38; bitulithic, \$13.18; brick, Albion block, \$11.25 and \$11.44; Pebbles block, \$11.37 and \$11.58. Either the Albion or Pebbles block will be selected by the board.

C. W. Appleby's bid was as follows: Pebbles' block, No. 1, \$13.84 per foot.

G. W. Palmer's bid was \$11.60 for Carlisle block.

The Jefferson County Construction Co.'s bid for granitoid sidewalks was 13c. per sq. ft. and curbing 44c. to 55c. per lin. ft.

The figures include the entire cost of the street, including also the city's portion of the cost of street pavement and the granitoid plaza in the center, formerly occupied by the old market house.

For the improvement of Greenaway pl. from 11th st. to Cedar Bough with granitoid sidewalks, curb and grass plot and sewer, the Jefferson County Construction Co. was also the successful bidder. Its figures were \$1.64 per lin. ft. with Bedford stone or \$1.76 with stratified stone curb.

C. W. Appleby's bid was \$1.78 Bedford curb or \$1.96 stratified curb. The board will accept the bid at \$1.64 if no objection is made by the property holders.

**Rushville, Ind.**—The Joint Board of County Commissioners, June 10, awarded the contract for constructing a macadam road, from Glenwood to Orange, to Wilkes & Martin, at \$9.971.

**South Bend, Ind.**—The contract for tar-viated macadam on Notre Dame st., for grade, curb and walk on Broadway from Fellows st. to Miami and for pavement on Webster st. from Sample to the Chicago, Indiana & Southern Railway.

**Clarinda, Ia.**—Bids were opened, June 22, for about 13,667 sq. yds. vit. block paving on 4-in. Portland cement concrete and the contract has been awarded to M. Ford, of Cedar Rapids, at \$1.73½.—C. W. Stuart, City Clerk.

**Mason City, Ia.**—Contracts for 18,900 sq. yds. of street paving at \$1.19 and 5,825 yds. of alley paving at \$1.26, all of cement and concrete, were awarded here June 28, by the Council, to M. Tschirgi & Sons, of Dubuque. The members of the Council and all other contractors were astounded at the low bids offered by the Dubuque firm, for the nearest bid to theirs was \$1.39 for streets and \$1.50 for alleys by Fryer, Locke & Johnson, of St. Paul; this will mean

splendid paving at a cost lower than ever anticipated; total improvement is for 21 blocks and will cost approximately \$35,000.

**Sioux City, Ia.**—Contract for resurfacing Jackson st. with creosoted wood block, bids opened June 22, has been awarded to Kettle River Quarries Co., of Minneapolis, Minn.; about 6,000 sq. yds. at \$2.18 per sq. yd. on concrete foundation already in place. —A. A. Smith, City Clerk.

**Lexington, Ky.**—The city succeeded in getting especially low bids on brick streets at the letting June 25; with five contractors bidding, Kelley Bros., of Portsmouth, O., put in the lowest bid, \$1 per sq. yd. for 5,400 sq. yds. on South Broadway, using pitch filler, or \$1.25 for cement grout or \$1.36 for asphalt filler. The firm bid \$1 per cu. yd. on concrete in place and 65c. lin. ft. for gray limestone curb. On North Broadway, from Main to 2d, this firm bid \$1.31 for brick with pitch filler, \$1.26 with cement grout filler and \$1.38 for brick with asphalt filler. For concrete in place the bid was \$4 per cu. yd. and for gray limestone curbing 68c.

The next lowest bid was that of G. W. Palmer & Co., Logansport, Ind., and was as follows: South Broadway, \$1.32, \$1.29, \$1.49, with \$1.49 for concrete; 52c. for gray limestone curbing. North Broadway, \$1.33, \$1.29, \$1.49, with \$1.49 for concrete and 52c. for gray limestone curbing.

Comparing the two lowest bids and estimating the whole contract for the two pieces of paving, Mr. J. A. Kelley figured that his company's bid was \$800 lower than his next competitor.

Other bids ranged considerably higher. The bidding under the specifications read for "vitrified paving brick laid complete" and five kinds of brick were named. They were Portsmouth brick, Portsmouth granite block, Carlisle block, Bannock block and People's block. The city reserves the right to select the filler it desires to use between the bricks.

The other bidders were as follows:

Michaels & Munnick Co., Marion, Ind.—North Broadway, Portsmouth granite block, \$1.54; pitch filler cement, \$1.50; asphalt, \$1.56; Carlisle block, \$1.62, \$1.52, \$1.64; Bannock block, \$1.64, \$1.58, \$1.68; concrete, \$5.80 per cu. yd.; limestone curb, 70c. per foot. South Broadway, Portsmouth granite block, \$1.54 pitch filler, cement filler \$1.50; asphalt, \$1.56 per sq. yd.; Carlisle block, \$1.62, \$1.52, \$1.64; Bannock block, \$1.64, \$1.58, \$1.68; concrete, \$5.80; limestone curb, 70c.

C. C. Miller & Co., Latonia, Ky.—North Broadway, Portsmouth granite block, pitch filler, \$1.66; cement, \$1.56; asphalt, \$1.73; Carlisle block, \$1.69, \$1.60, \$1.77; concrete, \$5 per cu. yd.; limestone curb, 60c. per foot. South Broadway, Portsmouth granite block, pitch filler, \$1.66; cement, \$1.56; asphalt, \$1.73; Carlisle block, pitch, \$1.69; cement, \$1.60; asphalt, \$1.77; concrete, \$5 per cu. yd.; limestone curb, 60c. per foot.

Julius Haug & Co., Decatur, Ind.—North Broadway, Portsmouth block, pitch filler, \$1.44 per sq. yd.; cement filler, \$1.50; asphalt filler, \$1.60; Carlisle block, \$1.50, \$1.52, \$1.50; Bannock block, \$1.60, \$1.52, \$1.60; concrete, \$4.67 per cu. yd.; limestone curbing, 65c. per foot. South Broadway, Portsmouth granite block, pitch filler, \$1.44; cement, \$1.50; asphalt, \$1.60; Carlisle block, \$1.50, \$1.52, \$1.50; Bannock block, \$1.60, \$1.52, \$1.60; concrete, \$4.67 per cu. yd.; limestone curb, 65c. per lineal foot.

**Louisville, Ky.**—The Board of Public Works awarded contract, June 17, to G. W. Gosnell & Co., of Louisville, for paving Swan and L sts. with vit. brick, at about \$11,500.

**Newport, Ky.**—The following bids are reported opened, June 9, for paving with brick a portion of Isabella st.: Edw. Knoepfle, \$10,762, and Jos. Collopy, \$10,996.

**Scottsville, Ky.**—Contract for grading and macadamizing streets and building bridges was, June 14, awarded to Franklin Concrete Co., of Franklin, for \$7,719; other bids received were: Webb & Allen, Nashville, Tenn., \$7,762; Curtis & Le Suer, Nashville, Tenn., \$10,465; Philip Brady, Nashville, Tenn., \$10,753, and Cunniff & Stone, Nashville, Tenn., \$9,833.—John Wilkes, Berry blk., Nashville, Tenn., Engineer.

**Baltimore, Md.**—Contracts were awarded by the State Road Commission, July 1, as follows: Three miles in Queen Anne's County on road leading from Centerville to Church Hill to N. C. Hunter (conditionally), \$23,711.30; in Talbot County 3 miles to G. M. Fench for \$28,986.59; in Harford County 2 miles, nearly, on road leading from St. Ignatius' Church to Forest Hill to Fisher & Carosa for \$17,522.50; in Prince George County 5½ miles of road to McCormick & Co., for \$56,636.62.

Bids for roads in Allegany, Baltimore and Somerset counties were rejected as too high.

**Havre de Grace, Md.**—E. M. Good, Lancaster, Pa., has submitted lowest bid at \$21,128 for macadamizing 2½ miles of streets. Bids were opened on June 15.

**Boston, Mass.**—Bids were opened by the Charles River Basin Commission for sur-

facing Sections 2, 3 and 4 of Boston embankment, and the lowest bid was that of Bruno & Pettitt, of Boston, as follows: 1,555 lin. ft. 8, 10 and 12-in. vit. pipe to lay, 30c.; 5,000 lin. ft. 4-in. cast iron pipe, to lay, 25c.; 4,400 lin. ft. 2-in. fiber conduit, 20c.; 6 service boxes "G," \$10; 26 service boxes "F," \$10; 41 catch basins for walks, \$12; 600 cu. yds. gravel, \$1.50; 230 sq. yds. vit. brick gutters, \$2; 9,600 sq. yds. granolithic walks, \$1.60; 20,500 cu. yds. loam surfacing in place, \$1.35, and 400 sq. yds. sodding, 50c. Total, \$48,003. Totals of other bids: Holbrook, Cabot & Rollins Corporation, Boston, \$49,421; T. H. Gill Co., Somerville, \$49,460; F. A. Wyman, Jr., Boston, \$50,722; Jas. Driscoll & Son, Brookline, \$51,800; Coleman Bros., Boston, \$55,167; H. M. McBride & Co., Brighton, \$55,176; W. H. Ellis, East Boston, \$61,092, and Jas. T. Barrett, Cambridge, \$62,996.—Hiram Muller, Chief Engineer.

Bids were opened, June 14, by Street Department and contracts were awarded as follows: Massachusetts ave., to Fred S. and A. D. Gore Corporation for \$21,547, and Washington st., to John F. O'Connell, at \$21,392.

**Boston, Mass.**—Superintendent of Streets Guy C. Emerson was awarded to the Fred S. & A. D. Gore Corporation two contracts for paving city streets for approximately \$22,400; one contract was for paving Albany st., between Dover st. and Broadway, for \$19,326.80, and the other for paving East st. between South st. and Atlantic ave. for \$3,074.24. The corporation was the lowest of ten bidders for the Albany st. work and the lowest of nine bidders for the East st. contract.

**Lynn, Mass.**—The contract for the construction of Lynnfield st. has been awarded A. S. Comasello, of Dorchester, for \$22,249.50, the lowest bidder, by the Essex County Commissioners; work will begin at once.

**Grand Rapids, Mich.**—Kloote & Vanderveen, 850 East Fulton st., have secured the contract to grade and pave a portion of East Leonard st., for \$10,139.

The Board of Public Works, June 12, awarded the contract for paving Alpine ave. to McDermott & Cooper for \$18,433.

**Webb City, Mo.**—Contract for constructing 11,524 sq. yds. imperial pavement on Joplin st., bids opened June 21, has been awarded to the Webb City Imperial Paving & Improvement Co. for \$11,524.—A. J. McKenzie, City Engineer.

**Omaha, Neb.**—The Board of County Commissioners in meeting June 26 opened bids for the grading of the river road above Florence from a point just south of Preis Lake to the Ponca Creek bridge; 10,000 yds. will have to be filled here; J. W. Williams was the lowest bidder for the work, offering \$1.94 the yard. Williams was also the lowest bidder for another grading job, that of moving 10,000 yds. of earth in the Ponca rd. from the Ponca Creek bridge to the Calhoun rd. His bid on that was \$1.74.

**Nashua, N. H.**—The contract for bituminous macadam pavement, bids opened June 17, has been awarded to Ahern Bros., of Norwich, Conn.; cost, \$10,000.

**Pembroke, N. H.**—Edward Adams, North Andover, Mass., has been awarded contract at \$5,215, for constructing a bituminous macadam road in this town.

**Atlantic City, N. J.**—Parker & King, West Creek, N. J., have secured contract at \$18,199, for grading and graveling 8 miles of road for the county. Bids were opened June 9.

**Cranford, N. J.**—The Union County Road Commission of Board of Freeholders, June 17, awarded the contract for paving Walnut ave. to E. C. Humphrey Co., of Hackensack, for \$15,483.

**East Orange, N. J.**—The road oil troubles were overcome, June 24, by the Road Committee of the City Council when the contracts for the material for highway treatment for the year were divided among three concerns, not one of which was either the Indiana Refining Co. or the Pennsylvania & Delaware Oil Co., between whose respective merits the original controversy started. The successful contractors are William E. Kline and the Standard Oil Co., each of whom will supply a carload or more of 65 per cent. asphalt oil, the one at 15-8c. and the other at 3-3-10c. a gallon, and the Gulf Refining Co., which will furnish the 95 per cent. oil, at 5.95c. a gallon.

**Jersey City, N. J.**—The Board of Finance has awarded contract for paving Myrtle and Rutgers aves. to Van Keuren & Sons, Grand and Prior sts., for \$17,137.

**Jersey City, N. J.**—The Street and Water Board has awarded to O'Reilly Bros. the contract for the improvement of Ferry st.

**Newark, N. J.**—The Board of Works has awarded contracts for grading, curbing and flagging Osborne Terrace to Anthony F. Gerber at \$14,692, and paving with brick a portion of Delavan ave. to Jersey Paving Co., 622 Union blvd., at \$9,273.—M. R. Sherred, Chief Engineer.

**New Brunswick, N. J.**—Contract for graveling the Deans-Franklin Park rd. has

been awarded by the Board of Chosen Freeholders to the Suffolk County Construction Co., at \$8,984.—Morgan Larsen, County Engineer.

**Paterson, N. J.**—The Board of Works has awarded contracts for paving to Geo. MacDonald, as follows: With wooden block, Carroll, East 18th sts, Totorva ave. and Bridge st., at \$2.57 per sq. yd.; with asphalt, Dale, Fair, North Main, Straight, Goodwin sts. and Ramapo ave., at \$1.89 and \$1.91 per sq. yd.

**Perth Amboy, N. J.**—Bids were received and opened for grading Kennedy st., Kamm st., Brace ave., Harrington st., Mary st., Carson ave. and Donald ave., as follows: Martin Hansen, 28c. per cu. yd.; Soren T. Jensen, 25½c. per cu. yd.; Graham & McKeon, 22c. per cu. yd.; Liddle & Pfeiffer, 21¼c. per cu. yd.

**Albany, N. Y.**—The bids received by the Board of Contract and Supply, June 21, for the improvement of Marshall st., from 2d ave. to Delaware ave., were: Holler & Shepard, Rochester, N. Y., \$11,214; Edward F. Dillon, Albany, \$11,290; Mulderry Bros., Albany, \$11,416. Contract was awarded to Holler & Shepard, Rochester, at \$11,214.

Bids were also received for the improvement of Slingerland st., from 2d ave. to a point 725 ft. northerly, as follows: Michael F. Dollard, Albany, \$9,148; Holler & Shepard, Rochester, \$9,222; Edward F. Dillon, Albany, \$10,005; Mulderry Bros., Albany, \$9,218. Contract was awarded to Michael F. Dollard, Albany.—Walter Melius, City Engineer.

**Brooklyn, N. Y.**—Bids were received as follows, June 23, by Bird S. Coler, Borough President, for regulating and grading Flatbush ave. as extended from Nassau st. to Fulton st. and repaving Bridge st., from Tillary st. to Nassau st., Chapel st., from Flatbush ave. extension 150 ft. westerly, Concord st. from Flatbush ave. extension to Duffield st., Duffield st., from Johnson st. to a point 280 ft. north of Tillary st., from Bridge st. to Gold st.; Henry P. George, 49 Washington st., Richmond Hill, \$25,903; James Kelly, \$37,264; Ryan Parker, \$36,898; Richard L. Russell, \$29,670; Newman & Carey, \$30,596; Frank A. Cunningham, \$31,377.

**Buffalo, N. Y.**—The Barber Asphalt Paving Co., 880 Ellicott sq., has secured the contract for paving a portion of Franklin st., at \$12,745.

**Glens Falls, N. Y.**—Warren Bros., of Boston, Mass., have secured contract for laying 11,000 sq. yds. of asphalt paving on Warren and Sanford sts., at \$2.08 per sq. yd.

**Long Island City, L. I., N. Y.**—The lowest bid opened, June 16, by Lawrence Gresser, Borough President, for grading, curbing and repaving Hoffman blvd. and Thompson ave., requiring 58,500 sq. yds. macadam, is reported submitted by Thos. F. Tuohy & Co., 89 Main st., Flushing, for \$34,515.

**Nyack, N. Y.**—The Board of Trustees have awarded the contract for paving Franklin st. with brick to Jas. Duell, of Tarrytown, at \$2.25 per sq. yd.

**Plattsburg, N. Y.**—Captain E. H. Hartman, Quartermaster at Plattsburg Barracks, has bids for the redressing of the road from the railroad crossing on Peru st. to the end of the reservation at the Gun Club grounds together with the road in the rear of the officers' quarters; the road is to receive 2 ins. of No. 2 crushed stone and 1 in. of No. 1 and dust, then to have a coating of oil over which is to be rolled another dressing of stone dust; the following were the bids submitted: P. Conlon, Jamaica Plains, Mass., 54c. per sq. yd.; Pennington & Butler, Plattsburg, 55c.; E. F. Moore, Burlington, 66c., and the Buckley Construction Co., Plattsburg, \$1.10; Mr. Conlon in his bid agrees to complete the work in 110 days.

**Rochester, N. Y.**—The Board of Contract has made the following awards: Fern st. cement walks, C. Aikenhead, \$306.20; Norwood st. brick pavement, Louis D'Argento, \$3,091; Nelson st. brick pavement, H. C. Schroeder, \$5,313; Pembroke st. brick pavement, H. C. Schroeder, \$5,474.50; Pippin st. cement walks, John Petrossi Co., \$491.95; Jewel st. cement walks, F. V. Brotsch Co., \$757.25; Exchange st. cement walks, Holder & Seitz, \$1,448; excavating and refilling trenches, laying water mains and appurtenances, group 218, Nicola Desiderio, \$5,573; group 219, N. Desiderio, \$3,726.50; group 220, N. Desiderio, \$1,574.

**Rochester, N. Y.**—The Board of Contract has awarded contract for paving State st. with creosoted block between car tracks to Whitmore, Rauber & Vicinus, 270 South ave., for \$15,837.

**Syracuse, N. Y.**—J. W. Bustin was awarded the contract to pave Cortland ave. from Onondaga ave. to Englewood ave.

**Troy, N. Y.**—The Board of Contract and Supply received two proposals for making repairs to the asphalt pavements throughout the city upon which the guarantee limit has expired. The North Hudson Contracting Co. agreed to do the work for \$2.33 per



yard and the Schenectady Contracting Co. submitted a proposal for the same work at \$2.55 per yard. The contract was awarded to the former concern. The bond of the Warren Bros. for the paving of 15th st., from People's ave. to Congress st., was submitted and sent to the Corporation Counsel for reference.

**Utica, N. Y.**—Contracts for constructing 36 pieces of sidewalk have been let as follows: Artificial stone walks, to N. D. Peters, at 15c. per sq. ft.; natural stone walks, G. B. Allen, at 16c. and 17c. per sq. ft.; Alexander McMullen, at 16c. and 17c. per sq. ft.

**Akron, O.**—Hunt & Wigley have secured contract for paving portions of Arch and Frank sts. for \$8,871.

**Athens, O.**—Contract for construction of Highway "C," Athens and Chauncey rd., Section 1, have been awarded by James C. Wonders, State Highway Commissioner, to Juniper & Nixon, city, at \$11,941.

**Caldwell, O.**—Contract has been awarded by James C. Wonders, State Highway Commissioner, to Wilson & Yardley, of Newark, O., for State Aid rd., Noble County, Highway "A." Caldwell and Belle Valley rd., at \$12,416, using rolled stone foundation and sand filler.

**Cincinnati, O.**—Bids were received June 25 by the County Commissioners on three county jobs. There were five bidders on the contract for the improvement of Banklick and Pottenger roads, which the County Surveyor estimates will cost \$3,355. On a rough computation Contractor H. E. Steele appears to be the lowest bidder. There were six bidders on the contract for the concrete culvert and fill on the Madison rd.; the estimate on this work was \$1,335; Contractor J. H. Roudebush appears to be lowest. On the contract for a structural steel foot bridge over Millcreek at Arlington Heights there were only two bidders. Contractor E. J. P. Bracket was low, with a bid of \$845, which was \$3 under the estimate.

**Columbus, O.**—A. G. Pugh has been awarded contracts for asphalt paving on three streets. The bids were as follows: Oakwood ave., Bramley, \$35,332.50; Pugh, \$37,279.50. Ohio ave., Bramley, \$20,169.50; Pugh, \$21,621.10. Eastwood ave., Bramley, \$6,822.30; Pugh, \$7,179.50. Jefferson ave., Bramley, \$4,687.20; Pugh, \$5,078.70. Tenders have been received for this work twice before. The Board of Service passed a resolution saying that in its opinion A. G. Pugh was the "best" bidder.

**Columbus, O.**—The Board of Service has awarded the following contracts for street improvements: Grant ave., from Naghten to Buckingham, A. G. Pugh, \$7,002; Granville, from Champion to Taylor, S. T. Knight, \$14,114; Gibbon, from Mt. Vernon to Atcheson, S. T. Knight, \$3,025; Millay, from High to Front, Geigle, Barnes & Co., \$1,547; McKee, from 4th to Grant, W. M. Graham, \$4,950; Pearl, from Livingston to Schiller, W. H. Lichtenberg & Co., \$16,662; 6th, from Main to Beck, W. M. Graham, \$14,073; 7th, from Main to Livingston, N. B. Abbott, \$12,566; Wall, from Milay to Russell, Geigle, Barnes & Co., \$750; sewer in alley west of Wheatland ave., to John Hush, \$2,223.

**Columbus, O.**—Hartman Stock Farm Co. has been awarded contract, at \$20,655, for constructing 1½ miles of the Chillicothe Pike for the county, the work including fill and construction 1½ miles of road with macadam and tarvia.

**Columbus, O.**—The Board of Public Service has awarded contracts for paving as follows: Lincoln st. to N. B. Abbott, 85 North High st., at \$10,503, and Sullivan ave. to Harry Shaw, Outlook Bldg., at \$10,526.

**Greenville, O.**—G. H. Heffner & Son, of Celina, have been awarded contract for laying on Central ave. 9,684 sq. yds. of Nelsonville block, 4 ins. thick on a 6-in. concrete base with 2-in. sand cushion at \$1.32 per sq. yd., including 3,519 cu. yds. clay excavation at 30c. Other bids received, including successful bidder, were: G. H. Heffner & Son, Celina, \$18,511; William McHugh, Springfield, \$19,475; Kelley Bros., Portsmouth, \$19,361; C. Hoolihan, Dayton, \$19,582; Ferra, Stocker & Barry, Greenville, \$20,380; J. O. Shoupe & Co., Dayton, \$20,897; William J. Kernan & Co., Dayton, \$20,376; W. M. Graham & Co., Columbus, \$21,733.—L. N. Jackson, City Engineer.

**Steubenville, O.**—Pike repair bids were opened June 25 and awards were made as follows: A. E. Stringer, Adena, Harrisville and York, \$2.19 per cu. yd.; Adena to Long Run, \$2.19; Long Run to Mt. Pleasant station, \$1.98; William Wheatley, Aikanna to Wills Creek, \$2.50; Aikanna to Kings, \$2.55; Aikanna to Sanders, \$2.48; Brilliant to George's Run, "slag repairs," \$1.28; Fernwood branches to Englands mine, \$2.39; George's Run to New Alexandria, "slag repairs," 98c.; New Alexandria to Grahams, \$2.10; Fox & Sharon, Emerson, Science Hill and Harrisville, \$2; Mt. Pleasant, Emerson and Belmont County

line, \$2.40; Rufus Wilcox and W. H. McClellan, Knoxville to Empire, \$2.13; J. R. Simpson, Knoxville to Island Creek Church, \$2.38; Richmond to Knoxville, same; Wm. R. Heburn, Long Run to Mt. Pleasant, \$2.25; Mt. Pleasant to Mt. Pleasant station, \$2.20; Mt. Pleasant to Rayland, \$2.30; Wm. Jackson, Rayland to Bidwells, \$2.10; Rush Run to Hopewell, \$2.25; Smithfield to Bidwell, \$2.20; Steltz & Bain, Richmond to East Springfield, \$1.99; Richmond to Skelley's station, \$1.99; Wintersville to Richmond, \$1.99; J. E. Carnes, Smithfield to Dillonvale, \$2.14; A. Frowine, Smithfield to Grahams, and Smithfield station, \$2.39; Smithfield to Red Ridge, \$2.49; J. F. and George Stringer, Steubenville to Wintersville, \$2.65; J. A. Tweed, Wilson's Corner to Gould's, \$2.49; several routes were not bid on at all.

**Youngstown, O.**—The Board Public Service on June 11 is stated to have awarded the contract for paving Florencedale ave. to Kennedy Bros., for \$10,035.

**Hobart, Okla.**—City has awarded contract to Warner-Quinlan Asphalt Paving Co., Syracuse, N. Y., for paving 3d st. with asphalt.

**Tulsa, Okla.**—C. F. Ireland, has received the contract to pave the various streets of Tulsa with the new Texaco brand of asphalt, and has signed up the contract and will commence work this month. The terms of the contract stipulate that the work is to be completed within 120 days; the work already planned will cover 40 new blocks over the city which will cost a little less than \$200,000.

**St. Johns, Ore.**—Council has awarded contract for improving a portion of the Portland blvd. to B. W. Mason, at \$12,000.

**Ashley, Pa.**—The Borough Council has accepted a bid for macadamizing a portion of the new mountain road from Prospect st. to Main st. The contract was given to Edward Post, his bid being a little over \$100 lower than the Lehigh & Wilkes-Barre Coal Co., the only other competitor.

**Chester, Pa.**—A motion to award the contract for paving Flood st., from Front to 3d st., with Grafton block to John Hanna & Sons at their bid of \$2.20 per sq. yd., was defeated and a motion to give the contract to the Barber Asphalt Co. at their bid of \$2.03 per sq. yd. was carried.

**Connellsville, Pa.**—With the intention of beginning work on the various paving contracts let by Council, Contractors Marcus Marietta and Bernard O'Connor have executed their agreements with Town Council and furnished the required bonds.

**Erie, Pa.**—John McCormick & Son have secured contract at \$1.45 per sq. yd., for paving on East 13th st. with Class B asphalt, the work including Bessemer block gutters and artificial curbing.

**Gallitzin, Pa.**—Council has awarded to C. K. Comly, of Port Royal, Pa., the contract for the sewer extension into Maysville; Mr. Comly's bid was \$2,233.90; work on the improvements, it is expected, will be started within a week or two.

**Hanover, Pa.**—Contract for about 8,000 sq. yds. brick paving on a concrete foundation, 2,500 ft. steel bound granolithic curb, also a reinforced concrete sewer, has been awarded to the Central Construction Co., city, at \$2.16 per sq. yd.; paving with Fairmont blocks, and 60c. per lin. ft. for curb.—A. E. Kohr, Borough Engineer.

**Hazleton, Pa.**—Council by an overwhelming vote decided on brick over bitulithic for the paving of Laurel st. and Mack brick was selected. John A. Leffler, the lowest bidder on that material, was given the contract by unanimous consent, his price being \$14.843; the other bids were as follows: G. H. Meinholz, \$15,912.50; Kehoe & Co., \$15,176.10; Ludwig Kramer, \$15,383.22; the bids of the Standard Bitulithic Co. were as follows: Bituminous base, \$14,334.08; concrete base, \$15,054.08.

**Pittsburg, Pa.**—The lowest bid opened by the County Commissioners for constructing the Beckerstown and Valencia rd. was submitted by Swanson Bros. at \$64,229.

**Reading, Pa.**—Contracts for vitrified brick for sewers, at \$8.25 per 1,000, and vitrified brick for gutters, at \$15 per 1,000, were let to the Glen-Gery Brick & Cement Co.

**Wilkes-Barre, Pa.**—Former City Engineer Alfred Hand has been awarded the contract for the repaving of the brick streets to April 1, 1910, his being the only bid submitted. The figures are as follows: Mack fire clay block, \$1.86; C. G. W. fire clay block, \$1.72; Preston shale brick, \$1.85; Metropolitan shale block, \$1.94; Porter fire clay block, \$1.76; Clearfield Mfg. Co. block, \$1.76; Patton shale block, \$1.76; lumber city block, \$1.72.

**Memphis, Tenn.**—City has awarded paving contracts, aggregating \$182,045.46, as follows: Nashville Roofing & Paving Co., East McLeamore ave., brick, \$22,967.90; Rayburn blvd., brick, \$23,143.29; Mississippi blvd., brick, \$29,784.50; Metropolitan Paving & Construction Co. of Memphis, North Lauderdale st., asphalt, \$40,375; North Main st., asphalt, \$31,061.50; Walnut st.,

asphalt, \$27,234.27; Union ave., asphalt, \$7,479.—J. H. Weatherford, City Engineer.

**Paris, Tenn.**—G. W. Swor, County Superintendent of Public Works of Henry County, has arranged to award contracts for work on roads in all but three districts; contract for First District awarded to J. L. Kilgore, Dresden, Tenn.

**Abingdon, Va.**—Town Council has awarded the contract for macadamizing a portion of Main st. to Miller & Sons, of Lynchburg, for about \$25,000.

**Bellingham, Wash.**—Booker, Campbell & Dickinson have been awarded contract by the city at \$18,908, for paving Grand ave. from Champion to Lottie sts.

**Tacoma, Wash.**—One Tacoma contracting firm was awarded contracts for street paving work aggregating \$94,635 by Commissioner of Public Works McGregor; the successful firm is Warter Bros., who were awarded two contracts, one to pave streets in district No. 422, which includes Tacoma ave. from North 6th to Carr st., North 8th, 9th, 11th and Starr sts. from Tacoma ave., to North 30th st., and the other, district No. 423, including Tacoma ave. from North 8th to Carr sts., North 8th, 9th, 11th and Starr sts. from G st. to Tacoma ave. and Carr st. from Tacoma ave. to North 30th st.

The bid of the successful contractors on district No. 422 was \$49,185. The Wells Construction Co. was the only competitor, its bid being \$51,762. On district No. 423, Warter Bros. bid \$45,450. Other bids were received on this job as follows: Coast Contracting Co., \$45,999; Wright & Sweeney, \$51,864; Wells Construction Co., \$48,890. The City Engineer's estimates on the work were \$55,821 on district No. 422 and \$53,356 on district No. 423.

Neither the Barber Asphalt Paving Co. nor the Independent Asphalt Paving Co. submitted bids on either of the districts. There was some question as to the legality of the districts, some contending that one overlaps the other. There is also a question as to whether Warter Bros. have a legal right to both contracts. Commissioner McGregor says he could do nothing except award both contracts to the one firm because of the way the bids ran.

The contract for grading East I st. from Division lane to South 40th st. was awarded to D. Matheson for \$5,500. The estimate on this job was \$6,331.

**Vancouver, Wash.**—Council has awarded contract for paving with asphalt portions of numerous streets here to Cascade Contract Co., at \$2 per sq. yd.

**Neenah, Wis.**—Eul. Cochems & Nebel, of Sturgeon Bay, Wis., have secured contract at \$15,988, for constructing about 9,557 sq. yds. of tar macadam and 7,161 lin. ft. of curb and gutter.

**Racine, Wis.**—The Board of Public Works has awarded the contract for furnishing 20,000 new brick, for use in placing new crossings on streets to Ricketson & Schwarz, of Milwaukee, at the rate of \$19.10 per 1,000.

## SEWERAGE

**Birmingham, Ala.**—Council is considering the construction of sewer mains in 9th ave., H. 11th and other streets; cost \$81,000.—H. E. Shropshire, Jr., City Clerk.

**Ensley, Ala.**—City is considering construction of about ten miles of sanitary sewers.—V. E. Ohl, City Engineer.

**Tusculum, Ala.**—Council is discussing a sewer system to embrace the entire city.

**Bakersfield, Cal.**—City Engineer White has prepared new specifications for work in Sewer District No. 6.

**Berkeley, Cal.**—Council is considering construction of a sewer near where the southerly boundary of Berkeley crosses San Pablo ave.; cost \$40,000.

**Oakland, Cal.**—The Board of Public Works has been authorized to construct a storm sewer in 22d st. from Grove st. to San Pablo ave.; the City Engineer has been directed to submit plans and specifications for sewerage 14th st. between Castro and Clay sts.

**Oakland, Cal.**—Council is considering an ordinance authorizing the Board of Public Works to construct the following storm sewers: In San Pablo ave. from Stanford ave. to Temescal Creek, in College ave. from 59th st. to Claremont ave., in 4th ave. from Newton ave. to East 21st st., in Washington st. from 2d st. to 8th st., the extension of the Walsworth ave. storm sewer in Harrison st. to Glen Echo Creek, to provide drainage at 12th and Fallon sts., storm sewer on 11th ave. and East 19th st., on Center st. from 32d st. northerly to the 36th st. outlet sewer, and making necessary appropriations.

**Oakland, Cal.**—The City Engineer has been directed to prepare plans and specifications and submit an estimate of cost for the construction of an extension of the concrete culvert in Temescal Creek at 51st st. and Telegraph ave.

**San Jose, Cal.**—An ordinance permitting



Gardner Sanitary District to connect with the city sewer system upon certain conditions, one of which is the payment of \$5,000, has been given second reading and adopted by Council.

**Macon, Ga.**—Citizens have defeated proposition to issue \$100,000 bonds for the construction and extension of the sewerage system; new election will be called.

**Aurora, Ill.**—Council has instructed Superintendent of Public Works Thomas Davis to install meters of the patent flush tank sort at each of the four flush tanks connected with the west side sewer system; meter device regulates the flow of water into the flush tanks at 500 gallons every 24 hours and will keep the sewer system in better condition as well as affording a considerable saving in water to the city.

**Rock Island, Ill.**—The City Engineer has estimated the cost of constructing the Sixth Ward sewer at \$45,834.

**Streator, Ill.**—City Engineer Herbert reported to Council that he had investigated the proposition of replacing Coal Run Creek with a sewer and stated that a 12-ft. reinforced concrete sewer from the west end of the culvert at the Crawford plant to a point opposite 6th st. would cost \$50,244; distance is 4,137 ft. and the cost to construct would be about \$12 per lin. ft.

**Elkhart, Ind.**—A petition for the following sewers has been filed and referred to the Engineer for plans: In South 3d st. from Hickory st. to Park ave.; Park ave. from Prairie st. to Delaware ave.; Delaware ave. from Park ave. to Chapman ave.; Chapman ave. from Delaware ave. to South 6th st.; South 6th st. from Chapman ave. to Indiana ave.; McKinley ave. from Park ave. to LaSalle ave.; LaSalle ave. from South 3d st. to Park ave.

**Davenport, Ia.**—Council has decided to build a big storm drain designed to carry all the surface water that collects in the vicinity of Harrison and Main sts. on the hill; drain will run from Harrison st. east on 18th to Perry st., and will empty into the big drain on Perry st.; it will be built several feet in diameter and will have sufficient capacity to carry all the water from upper Harrison, Main, Brady and that vicinity; the drain will be constructed of concrete and will cost several thousand dollars.

**Waterloo, Ia.**—C. T. Nelson, City Engineer, has prepared plans for sanitary sewers; cost \$25,000.

**St. John, Kan.**—Citizens have voted to issue bonds for the construction of sewers.

**Lexington, Ky.**—By a decision handed down in the Lafayette Circuit Court by Judge Watts Parker, the city ordinance providing for the issuance of \$25,000 sewer bonds is held to be valid.

**Laurel, Md.**—Citizens will vote July 13 on bonds for the construction of a sewerage system.

**Holyoke, Mass.**—The extension of Pine st. out into the park system is likely to come soon; Park Board is seeking the co-operation of the Board of Public Works in this enterprise; Park Board desires that the storm water sewer system started in Oakdale last winter be extended beyond Pine st. at least, or as soon as possible to extend Pine st. by bridging the gully that intervenes between the park and the present terminus of the street; immediate needs of the Board could be satisfied by the placing of about 100 ft. of sewer directly at Pine st. to be ultimately drained to the new system.

**North Andover, Mass.**—City has awarded \$35,000 4 per cent sewer bonds to Parkinson & Burr. at \$104.02.

**Northampton, Mass.**—Contract will soon be let for completion of the sewage filtration plant.—W. H. Tannant, Jr., Town Engineer.

**Quincy, Mass.**—Council has passed an order appropriating \$6,600 for surface drainage.

**Benton Harbor, Mich.**—Council has adopted a resolution providing for the construction of a sewer on Colfax ave.—A. H. Burger, City Clerk.

**Detroit, Mich.**—Council has directed the Department of Public Works to advertise for bids for 14 vitrified crock lateral sewers through alleys.—J. J. Haarer, Commissioner.

**Lansing, Mich.**—City Engineer H. A. Collar has prepared plans for constructing crock tile sewers in several streets; cost \$4,000.—M. T. Gray, City Clerk.

**Lincoln, Neb.**—City Engineer Files has estimated the cost of extension of the storm sewers on N and B sts. at \$47,500.

**Belleville, N. J.**—A resolution requesting the Township Committee to advance to the Passaic Sewerage Commission an additional \$2,500 toward a fund needed to push the work for a trunk sewer has been passed by the Belleville Board of Trade.

**Chatham, N. J.**—Citizens will vote in September on \$70,000 bonds for a sewer system.—Williams, Proctor & Potts, New York, N. Y., Engineers.

**Perth Amboy, N. J.**—Council has decided to lay a 12-in. pipe sewer in Lewis and Sutton sts.—Wilbur La Roe, City Clerk.

**Woodbridge, N. J.**—The Township Committee is considering the construction of a sewer in Main st.

**Coudersport, N. Y.**—Council has been advised by the Board of Health that it will soon have to provide a sewage disposal plant for the caring of the borough sewage, as the State Board will not longer permit the flowing of sewage into the Allegany River; as yet the Council has taken no steps toward securing plans and specifications for the new system, but action is likely to be taken soon; work of reconstructing the sewer system will be quite a task.

**Fultonville, N. Y.**—Citizens have voted \$30,000 bonds for installing sewerage system and sewage disposal plant and paving.

**Rochester, N. Y.**—The joint Committee on Finance, Streets and Sewers and Public Improvements has presented a report recommending appropriation of \$25,000 for a preliminary survey for a new outlet sewer to Lake Ontario with subsidiary disposal plants.

**Syracuse, N. Y.**—Council has passed ordinance giving Alderman Davis' ward, the Ninth, the following new sewers: 15-in. pipe sewer in Avery ave. from Gere to 22-in. pipe in Avery ave. from Gere to Milton; 15-in. pipe in Gere ave. from Avery to Gere place; 15-in. pipe in Gere place from Gere to Milton; 12-in. pipe in Gere ave. from an angle in Gere ave. to Gere place, and 12-in. pipe in Morgan ave. from Avery ave. to city line.

**Watertown, N. Y.**—The Board of Public Service has asked Council for \$700 to replace the old stone sewer in Academy st. from William to Rutland st. with tile.

**Fargo, N. D.**—City Engineer Crabbe has presented plans for the construction of sewer and water works on 1st ave. south from 15th to 17th sts.

**Ashtabula, O.**—Council has decided to build a sewer in North Main st., north of Lake st., for sanitary purposes.

**Cincinnati, O.**—The cost of laying sewers in Harrison, Urweiler and Statham aves. and in Poplar court has been estimated at \$17,332.

**Dayton, O.**—The Board of Service has advertised for bids for the construction of storm sewers in Wayne ave. from Wilmington to Highland ave., and in Wyoming st. from Phillips to Creighton ave.

**Hamilton, O.**—The R. Kleybolte Co. was the highest bidder on \$9,500 storm sewer bonds, bidding \$59.85.

**Lorain, O.**—The Engineering Department has completed plans for a new storm water sewer district on East Erie ave. and the Clerk of the Council has been instructed to give notice that the plans are on file at the City Hall; new district is provided for in advance of paving.

**Mansfield, O.**—Council has ordered the Board of Public Service to advertise for bids for constructing 2,700 ft. of 8-in. sewer on North Mulberry st. with two flush tanks and eight manholes.—O. H. Hursh, City Engineer.

**Niles, O.**—Council is considering the extension of sewer and water mains at a cost of \$5,000; also the construction of a sewer in Holford st.

**Norwalk, O.**—City will lay 1,000 additional feet to its sewer system and install 500 ft. of water main at the same time.

**Port Clinton, O.**—Council has passed an ordinance to issue \$4,000 bonds for constructing sewers.—J. J. Huber, Clerk.

**Sebring, O.**—Village has adopted plans for a sewerage system, including a disposal plant.—R. J. Jones, Mayor.

**Tiffin, O.**—City is considering construction of a sewer; cost \$2,000.—C. D. Peters, City Engineer.

**Uhrichsville, O.**—Council has passed a resolution for constructing sanitary sewers in Trenton ave.

**Holdenville, Okla.**—City will receive bids July 7, 7:30 p. m., for the construction of sanitary sewers and water works improvements; work includes about three miles of sewer.—The Mackintosh-Barbour Co., 434 Bassett Bldg., Oklahoma City, Engineers; I. A. Draper, City Clerk.

**Eugene, Ore.**—Council has passed an ordinance to lay a sewer in the southwest part of the city.

**Portland, Ore.**—City Auditor A. L. Barbour has been authorized by Council to give legal notice of the proposed construction of a district sewer, to be 700 ft. long and 5 ft. clear inside, circular, reinforced concrete, to be known as the Johnson Creek District sewer; time has not yet been fixed for bids to be received; cost \$8,846.67.

**Chester, Pa.**—Chief Engineer H. A. Snow, of the State Health Department, Harrisburg, was in this city looking over the situation in regard to the establishment of a sanitary sewerage system to comply with the State law.

**Chester, Pa.**—City will select either Alexander Potter, T. C. Hatton or A. F. Damon, Expert Engineers, to plan the proposed sewer system.

**Harrisburg, Pa.**—Owing to complaints received at the Fisheries Department regarding the pollution of Susquehanna River at a result of the water that comes from the York Haven Paper Co.'s plant, Commissioner Meehan has directed that a filter plant be erected at the works.

**Reading, Pa.**—Council has passed an ordinance providing a \$400,000 loan for sewers and street paving.

**West Hazleton, Pa.**—Council has ordered the issue of \$17,000, lately voted, for the construction of sewers.

**Wilkes-Barre, Pa.**—The City Clerk has been instructed to advertise for bids for the terra-cotta drains on the Stull property and the rear of the lots on Parrish and Blackman sts. in the Fourteenth Ward.

**Providence, R. I.**—The recently elected Board of Sewer Commissioners, consisting of Henry F. Anthony, Merrill R. Coombs and Joseph W. Sampson, will soon make the preliminary arrangements for the construction of sewers; while it may be several weeks before the bond issue can be arranged by the Administrative Board, it is possible that the Sewer Commissioners will have arranged matters so that as soon as the bonds are sold the dirt will begin to fly; while no definite action has been taken in reference to the sewers to be constructed first, it is understood that the trunk line across Watchemoket square and up Valley or Water st., and then easterly to Broadway Six Corners, will be the first installed, as a large part of the district will have to be connected to this trunk line.

**Providence, R. I.**—Resolutions have been adopted by Council ordering sewers to be constructed in Forest st. from Ivy st. to Hope st., estimated cost \$1,616.31; in Cumerford st. from Wallace st. to Union ave., \$1,766.08; in Richardson st. near Ocean st. to Rugby st., \$640.74, and Sumter st. from Emerson st. to Hamilton st., \$1,099.90.

**Providence, R. I.**—Report of the Committee on City Engineer's Department, recommending a resolution directing the Commissioner of Public Works to replace pumps at the sewage pumping station, has been referred to the Committee on Finance.

**Providence, R. I.**—The Committee on Sewers has voted to recommend to Council that a resolution be passed directing the construction of a main trunk sewer through the Silver Lake District, in the annexed section; cost \$200,000.

**Greenville, S. C.**—City is considering the issuing of \$300,000 improvement bonds, including sewer construction.—W. D. Neeves, City Engineer.

**Binghamton, Tenn.**—City has issued \$40,000 bonds to construct proposed sewer system and water works.—Charles A. Price, Chairman Sewer and Water Commission; J. A. Omberg, Memphis, Engineer-in-Charge.

**Chattanooga, Tenn.**—Citizens have voted \$125,000 bonds for the construction of a crosstown sewer in South Chattanooga and for building small sewers in various parts of the city.

**Dallas, Tex.**—City has rejected all bids for laying a 6-in. sanitary sewer from Cedar Springs to Routh; bids ranged upwards from \$1,255, while the estimate of the City Engineer for the work was \$700.

**Dallas, Tex.**—The Board of Municipal Commissioners has decided to ask that bids for constructing a large sanitary sewer through Fair Park and South Dallas; sewer is to be 18-inch in size through its first 7,000 ft.; for the next 2,000 ft. it will be 20-in.; for the last 7,500 ft. it is to be 24-in. size; line is to be almost exactly three miles long.—J. M. Preston, City Engineer.

**Houston, Tex.**—City Commissioners Jack Kennedy and W. J. Kohlhauff have made a tour of the Sixth Ward for the purpose of investigating the needs of a portion of that section of the city in the way of additional sewer facilities; as a result of the trip it is announced that a sewer will be built for a distance of about 500 or 600 ft. along and over portions of White, Moore and State sts., and another small section from Pike st. to the bayou, to relieve the property in that locality.

**Tacoma, Wash.**—Council has adopted resolution instructing the Commissioner of Public Works to have plans, specifications and estimates prepared for construction of storm water culverts under South 25th st. between Pacific ave. and A st. and under A st. between Puyallup ave. and South 25th st., and to advertise for bids for same.

**Vancouver, Wash.**—Council is considering the issuing of \$100,000 bonds for street improvements and sewers.

**Bridgeburg, Ont., Can.**—Citizens are considering the construction of a trunk sewer and a disposal tank; cost \$40,000.

### BIDS RECEIVED AND CONTRACTS AWARDED

**Los Angeles, Cal.**—The contract for building Section 4 of the South Los Angeles main sewer has been awarded to J. C. Duncan, city, for \$17,579.

**Pasadena, Cal.**—E. Schilling was awarded the contract on sewer construction for Los Robles ave. and other streets at \$6,360; other bids were: W. E. Mayle, \$8,454; B. F. Ford, \$7,261; David Jay, \$7,360; J. S. McBride, \$7,397; Chamberlain & Williamson, \$7,857; Andrew Holloway, \$7,300.

E. Schilling secured the contract for sewers in the northwest district at \$4,240; others were: David Joy, \$4,973; Chamberlain & Williamson, \$4,827; B. F. Ford, \$4,315; J. S. McBride, \$4,854; W. E. Mayle, \$4,753; A. Holloway, \$4,250.

**Bridgeport, Conn.**—Bids for the construction of six new sewers were opened by Public Work Director Biltz but no contracts were awarded; the lowest bidders were the Burns Co., Lindley st. sewer, 80c. per running ft.; Pierce Manufacturing Co., Fox st., 80c. per running ft.; E. T. Doolittle, Freeman st., 57c.; Pierce, Jr., Co., Worth st., 60c.; E. T. Doolittle, Noble ave., \$1.50.

**Harvard, Ill.**—The following are the bids opened June 12 for (a) construction of sewers, (b) sewage purification plant: E. R. Harding, Racine, Wis., a \$29,374, awarded contract; b \$12,500; Robt. Nelson, Racine, Wis., a \$30,031; Hamilton Bros., Hope, Ark., a \$30,866; Monahan Bros., Joliet, a \$32,400; b \$12,500; F. G. Mortimer, Glencoe, a \$33,785; b \$11,590; O'Shea & Shea, Hammond, Ind., a \$33,939; b \$11,735; Logan & Gieritz, Elgin, a \$34,777; b \$10,800, awarded contract; Pendergast & Fallon, Chicago, a \$35,514; N. F. Reichert, Racine, Wis., a \$36,280; b \$12,900; P. J. Ryan, St. Paul, Minn., a \$39,685;—W. S. Shields, Chicago, Engineer.

**South Bend, Ind.**—Bids were opened June 18, for constructing the Meade st. trunk sewer, and O'Shea & Shea, of Hammond, secured the contract on Jackson reinforced concrete pipe at the following bid: 1,000 ft. 66-in., \$6.50; 3,200 ft. 60-in., \$6; 1,990 ft. 54-in., \$5.25; 1,200 ft. 48-in., \$5; 1,560 ft. 42-in., \$4.50; 1,175 ft. 20-in., \$3; 26 ft. 24-in., \$2.50; 1,720 ft. 8-in., 30c.; 318 man-holes, \$2.50; 86 inlets, each, \$4, and 28 man-hole covers, each, \$6; total cost, \$54,633. Totals of other bids: Federal Improvement Co., Chicago, Ill., \$91,064; Nelson & Webster, South Bend, \$64,847; Staples & Ackerman, South Bend, \$74,912; Hoban & Roach, South Bend, \$79,860.

**Council Bluffs, Ia.**—A. E. Wickham & Co., city, has been awarded contract for the construction of 2,000 ft. of 6-in. pipe sewer, 3,200 ft. of 8-in. pipe sewer and 1,000 ft. of 10-in. pipe sewer.

**Lexington, Ky.**—Three bids were received on the construction of a public sanitary sewer on Bryan ave. from a point near Main st. to Central ave.; the bid of Joe Melvin & Co. being the lowest it will be recommended by the Board of Public Works for acceptance. The bids were as follows:

Thomas Ahern & Co.: 8-in. pipe, 65c. per ft.; 5-in. pipe, 35c. per ft.; 5-in. Y's on 8-in. pipe, 50c.; for 5-inch one-eighth bends, 50c. each; manholes, \$35 each; flush tanks, \$60 each; rock excavation, \$2 per cu. yd.; timber sheathing, \$24 per 1,000 ft., B. M.

Thomas O'Day: 8-in. pipe, 63c. per ft.; 5-in. pipe, 40c. per ft.; 5-in. Y branches, 50c. each; manholes, \$27 each; flush tanks, \$60 each; rock excavation, \$3.50; for timber sheathing no estimate.

Joe Melvin & Co.: 8-in. pipe, 50c.; 5-in. pipe, 35c.; 5-in. one-eighth bends, 55c.; manholes, \$40; flush tanks, \$60; rock excavation, \$4; timber sheathing, \$25.

**Louisville, Ky.**—The Ferro Concrete Construction Co., of Cincinnati, O., was awarded the contract for building Section A of the northwestern trunk sewer by the Board of Sewer Commissioners at an approximate bid of \$7,000; there were four other bidders; the Ferro Construction Co. already has two other large contracts under the Board of Sewer Commissioners.

**Detroit, Mich.**—The following are the lowest bids opened by the Board of Aldermen on June 14 for sewers: Geo. W. Winterhalter for Cameron ave. sewer, \$8,411.08, and John Ginzle for Central ave. sewer, \$34,260.

**Nashauk, Minn.**—H. S. Bartlett, of Virginia, Minn., has secured contract for sewers for \$16,467.

**St. Paul, Minn.**—Contract for constructing the Prior ave. sewer system has been awarded to the General Contracting Co., of Minneapolis, at \$61,900; it will include 4,639 lin. ft. of reinforced concrete sewer, 36 to 42-in. and 8,594 lin. ft. vit. pipe, 9 to 30-in. —L. W. Rundlett, City Engineer.

**Virginia, Minn.**—The contract for constructing storm sewer on south side of the city has been awarded to Pastoret & Lawrence Co., of Duluth, for \$24,363; other bids received were: H. L. Bartlett & Co., city, \$27,765, and C. P. Butler, city, \$26,793.

**Perth Amboy, N. J.**—John F. Kerwin & Co. were awarded a contract to build a sewer in Groom and Neville sts. June 7, but failed to sign the contract, and their certified check for \$50 was forfeited and the contract awarded to the next lowest bidder, Liddle & Pfeiffer.

**Auburn, N. Y.**—Council has awarded the contract for the building of the sewage disposal plant to be located in the First, Sixth and Tenth wards to Brayer Bros., of this city, they being low by \$139.08.

**Mt. Kisco, N. Y.**—Bids were opened, June 23, at the office of John H. O'Brien, Commissioner of Water Supply, Gas and Electricity, New York City, for furnishing material and constructing pumping station and sewage disposal plant at Mt. Kisco, and the lowest bid was that of John W. Heller, 738 Broad st., Newark, N. J., as follows: Pumping station, \$3,600; building roadway, 1.25 miles, \$12,600; two concrete roadway bridges, \$1,600; 3,750 lin. ft. 10-in. gas, etc., force mains, to lay, \$1.76; 3,000 cu. yds. excavating, 30c.; 3,000 cu. yds. embankment, 25c.; 300 cu. yds. concrete, class A, \$9.90; 2,000 cu. yds. concrete, class B, \$5.90; 12,000 lbs. steel reinforcement, 3c.; furnish and lay complete all apparatus for disposal plant, \$400; 46,000 sq. ft. tile equipment, 6c.; 4,600 cu. yds. broken stone, \$2; 2,200 cu. yds. sand and gravel, 45c.; furnish and placing valves, \$650; vit. pipe, lump sum, \$1,250; dosing apparatus, lump sum, \$2,200; tool house, \$200; total, \$62,580. The approximate totals of other bids are: New York & Portchester Construction Co., \$81,705; F. T. Ley Co., \$90,360; Chas. E. Frazer, \$80,458; Bunting Bull Co., \$96,480; Ammann & Lyons, \$77,085; Clinton Beckwith, Herkimer, N. Y., \$82,325; T. M. McLeod Co., \$69,511; Kelley & Kelly, \$65,120; Merrill-Ruchgaber Co., \$74,600.

**South Nyack, N. Y.**—Bids were opened, June 10, for constructing seven sections of sewers, and the contract has been awarded to John N. Heeney, of White Plains, at \$7,138, and \$2.65 per cu. yd. for extra rock excavation.—A. Themans, Village Clerk.

**Syracuse, N. Y.**—The big intercepting sewer contract was awarded, July 1, to John Young by the Intercepting Sewer Board on his bid of \$231,286.75; contract was awarded on the agreement that it be immediately assigned to Young & Fitzgerald, a co-partnership consisting of Mr. Young and William Fitzgerald, of Skaneateles and Chicago. The assignment was made and approved by the board and a surety company bond for \$50,000 for the performance of the contract was exacted and filed.

**Grand Forks, N. D.**—Contract for constructing lateral sewers has been awarded to the Northern Construction & Engineering Co., city, for \$23,691.—W. H. Alexander, City Auditor.

**Grand Forks, N. D.**—Contract for the construction of the Riverside Park sewer has been let to the Northern Construction and Engineering Co., city; a new style of sewer construction will be used for a portion of the sewer, that is, from the river back a distance of 800 ft.; this section will be of the Jackson reinforced concrete pipe, 48 inches in diameter. Contractor McDonnell also had a bid in for the work, the bids of the two competitors follows:

	McDonnell	N. C. & Eng. Co.
Brick Masonry sewer and pipe .....	\$25,930	\$25,638
Brick Masonry sewer .....	24,575	30,369
Reinforced concrete and pipe .....	26,025	24,479
Reinforced concrete .....	26,580	25,662
"Jackson" reinforced concrete pipe and vitrified pipe .....	25,605	23,691
"Jackson" reinforced concrete pipe .....	27,925	26,734

**Ironton, O.**—The bids for the proposed Pine st. sewer from 6th st. to Beechwood Park were opened June 28 and Roy Haney, of this city, was the lowest bidder by over \$2,000; there were three bidders, Haney for \$5,114; Ironton Construction Co., \$7,482.40, and J. M. Wynes, of Huntington, \$7,975.10.

**Fort Stevens, Ore.**—E. Gustafson, Astoria, Ore., has been awarded contract for installing sewer connections at Fort Stevens.

**Carbondale, Pa.**—Hugh Atkinson has been awarded the contract for the construction of a sewer on South Main st. at 70c. per lin. ft.

**Gallitzin, Pa.**—Council has awarded to C. K. Comly, of Port Royal, Pa., a contract for the construction of the new sewer extension into the suburban district of Maysville, the consideration being \$2,233.90; work on the improvements will be started within a week.

**Indiana, Pa.**—Contract has been awarded to C. A. Malone, Hollidaysburg, by the borough for laying 2,317 ft. of 12-in., 4,045 ft. of 10-in., 4,820 ft. of 8-in. and 4,995 ft. of 6-in. pipe sewers, eleven manholes and

eleven flush tanks at \$10,962.—Thomas Pealer, Borough Engineer.

**Philadelphia, Pa.**—Bids were opened June 29 for the construction of three sewer projects in West Philadelphia. There were 18 bidders for the work, which probably will be awarded in a few days. For the Botanic st. system in 57th st. from Gibson to Eastman ave., to 56th st., to the Schuylkill, \$30,000 is available. Robert P. Ryan was the lowest bidder. For the Cobb's Creek sewer, an intercepting sewer through Cobb's Creek Park and Mount Moriah Cemetery, from 68th st. north to Florence ave., the available money is \$70,000. Robert Higgins was the lowest bidder. For the Market st. extension, from 63d st., through private property, the amount set aside is \$15,000. Michael McNulty was the low bidder.

**Philadelphia, Pa.**—Bids for three sewers opened June 29, for which there is \$115,000 available, provide for systems that will make possible the prevention of further pollution of Cobb's Creek, which is to be included in an extensive park and parkway improvement from Overbrook south to the county line. The largest of these is the Cobb's Creek intercepting sewer in Cobb's Creek along the proposed parkway and through Mt. Moriah Cemetery, and from 68th st. northward to Florence ave. For this work there is \$70,000, and, while the bids submitted were on the unit basis, and the low bidder cannot be determined until the bids are scheduled, Robert Higgins appears to have submitted the lowest total estimate. In connection with this same sewer another bid was received for the extension of the Market st. sewer from 63d st. through private property to the Cobb's Creek extension, for which \$15,000 is available. Michael McNulty appears to be the low bidder for this work. Both of these sewers are to make it possible to divert all the sewage to underground systems so that Cobb's Creek can be freed of pollution as far as possible. A third bid was for an extension of the Botanic st. sewer system in 57th st., from Gibson to Eastwick ave., and in Eastwick ave. from 56th to 57th st., to the Schuylkill River, for which there is \$30,000 available. Robert P. Ryan appears to be the low bidder for this.

**Pittston, Pa.**—The Market st. sewer contract has been awarded unanimously to Fitzpatrick & McConville, of this city, the firm that has done practically all of the city improvement work during the past few years; their proposal of \$1,747.76, being at the rate of 56c. per lin. ft., was the lowest of the three submitted. Edward Healey and Adam Barth were the other bidders. Healey would do the work for \$2,059.86, while Barth agreed to construct the sewer for \$1,810.18.

**Aberdeen, S. D.**—A contract for about 3 miles of sewers, or 14,804 lin. ft., was let June 25 by Council to J. J. Dunnigan, of Shanandoah, Ia., for \$22,531.14. N. N. Irwin, representing the company, said work would be started at once. The work is approximately as follows: 1,100 ft. 8-in. pipe, 2,700 ft. 10-in., 2,700 ft. 12-in., 9,000 ft. 15-in. Other bidders were as follows: Western Improvement Co., \$23,009.68; W. C. Fraser, \$23,594.30; P. M. Ringrose, \$26,081.80; James Kennedy, \$25,531.90.

**Dallas, Tex.**—On recommendation of City Engineer J. M. Preston all of the bids for the laying of a 6-in. sanitary sewer from Cedar Springs to Routh, on the right-of-way of the Katy, were rejected. They ranged upward from \$1,255, while the estimate of the Engineer for the work was \$700. It was decided that the city shall do the work by day labor, unless it shall be deemed best to call for other bids.

### WATER SUPPLY

**Jonesboro, Ala.**—City is considering advisability of constructing a water works system.

**Conway, Ark.**—City is considering construction of water works.

**Independence, Cal.**—Town is planning to lay a new system of 8-in. mains.

**Los Angeles, Cal.**—City will purchase a quantity of fire hydrants.

**Pasadena, Cal.**—Mayor Earley is urging that the city acquire the local water plants.

**San Bernardino, Cal.**—City will purchase 260 tons of cast-iron pipe.

**San Francisco, Cal.**—Plans are being prepared for work in connection with the distribution system as follows: For cast-iron and cast steel special castings; for mechanical equipment of Van Ness ave. pumping station, and for the Rincon Hill pumping station, and for fresh water pumping stations.

**Bridgeville, Del.**—Bids will be received for \$25,000 water and sewer bonds.—Robt. R. Layton, Secretary Town Commissioners.

**Miami, Fla.**—The Florida East Coast Railway, A. L. Hunt, St. Augustine, Engineer, will construct water pipe line from Miami and Tavanier Creek over entire route of extension to Key West.



**Marietta, Ga.**—City has selected J. B. McCrary & Co., Empire Bldg., Atlanta, Ga., as consulting engineers for water works system; plans and specifications will be prepared for receiving bids at once; \$80,000 bonds are available.

**Richland, Ga.**—City will expend \$5,000 for water main improvements.—M. B. Browne, Superintendent.

**West Point, Ga.**—City is considering installation of a turbine electric-driven pump.—H. L. Hill, Superintendent.

**Goshen, Ind.**—City will expend \$8,000 in improving the water works system; work includes new wells, installation of air lift and new pumping system.

**Hagerstown, Ind.**—Messrs. Hancock & McMillan have been granted a franchise for the construction and operation of a combined water works and electric light plant.

**Albia, Ia.**—City has decided to extend mains to the new school in eastern section for fire protection.

**Atlantic, Ia.**—City Engineer Ryan has recommended that a standpipe be built for the storage of city water.

**Marshalltown, Ia.**—All bids opened for constructing an elevated tank 165 ft. high and holding 100,000 gallons of water have been rejected; new bids will be received.

**Ashland, Kan.**—Plans are being prepared by Engineers J. S. Worley Co., Reliance Bldg., Kansas City, Mo., for a water works and electric light plant; cost \$30,000.

**Mead, Kan.**—Plans are being prepared by J. S. Worley Co., Reliance Bldg., Kansas City, Mo., Engineers, for a system of water works; cost \$20,000.

**Nickerson, Kan.**—Council is considering installation of a water works system and an electric light plant.

**St. Johns, Kan.**—Citizens have voted to issue \$40,000 bonds for constructing a system of water works, sewers and electric light plant.—Burns & McDonnell, Scarritt Bldg., Kansas City, Mo., Engineers.

**Bowling Green, Ky.**—City will install a filter to its water plant.

**South Paris, Me.**—Citizens are advocating a municipal water works system.

**Frederick, Md.**—In making their annual tour of inspection of the water works of the city, the Mayor and Aldermen and the Superintendent of Water Works think they have solved the water scarcity problem, which has been a vexatious matter for some time; discovery was made that there is an abundant supply of water, but that the main from the reservoir to the edge of the city is too small to convey the amount of water needed; it is only an 8-in. main, laid a number of years ago when the demand for water in the manufacturing district was not anything like what it is now; Aldermen have decided to lay a 20-in. main in addition to the present main from the reservoir to the edge of the city, and also to run another pipe in addition to the one now supplying the manufacturing district; Board will call a public meeting to lay the plans before the citizens.

**Chicopee, Mass.**—Council has appropriated \$28,000 for installing a water system at Fairview.

**Fall River, Mass.**—Philip D. Borden, City Engineer, and Arthur T. Safford, Lowell, Consulting Engineer, will make investigations and report to the Reservoir Commission as to the best method of protecting the water supply; \$200,000 has been appropriated.

**Holyoke, Mass.**—The Water Board is planning to lay mains in Elm st.; the Board also authorized the Superintendent to order a sufficient amount of 8-in. pipe to make the proposed extensions on the Springfield road, and that enough 6-in. pipe to make up a carload be included with the order; also to lay 550 ft. of 8-in. pipe on Springfield road to afford fire protection to residents near Ingleside st. on the Springfield road.

**Lower Chelmsford, Mass.**—The Fire District has voted \$2,000 for the extension of the water mains.

**Bessemer, Mich.**—Council has appropriated \$10,000 for the improvement of the water works station.

**Anoka, Minn.**—Citizens have voted to issue \$40,000 bonds for the purchase and \$20,000 for the improvement of the water and electric light plants.

**Minneapolis, Minn.**—Filtration of river water as the solution of the local pure water problem has been recommended to the Council in a report from the Citizens' Water Commission.

**Boulder, Mont.**—The County Commissioners have granted W. B. Tindall and Irving Boyd, of Boulder, and F. H. Palmer, of Livingston, a franchise for water works.

**Laurel, Mont.**—Plans have been submitted for a water works system.

**Atlantic City, N. J.**—City will soon ask bids for the proposed \$160,000 aqueduct from the Absecon pumping station to the Atlantic City mains.

**Atlantic City, N. J.**—A project is being considered to connect all artesian wells in

the resort, of which there are more than 50, as an additional means of fire protection and preventing a water famine should one or more of the seven-mile-long water mains, on the meadows, break or go out of service.

**Kearny, N. J.**—Town has sold \$30,000 water bonds to J. S. Everett & Co., of New York.

**Ithaca, N. Y.**—City is considering the improvement of dam and pipe line.—Donald F. McLeod, City Engineer.

**Mount Morris, N. Y.**—Citizens have voted proposition giving the Trustees power to purchase or install a water works system; cost not more than \$46,000; proposition to purchase the Mills Water Works for \$50,000 was defeated.

**Monroe, N. C.**—Bids will be received until July 15 for \$25,000 water and light bonds.—H. B. Adams, Jr., Clerk Board of Aldermen.

**Beach, N. D.**—Citizens will vote on installation of a water works system and electric light plant.

**Fargo, N. D.**—Citizens will vote July 22 on \$100,000 for the installation of a filtration plant and electric lighting plant.

**Cleveland, O.**—Council has appropriated \$11,000 for improvements to the water works.

**Dayton, O.**—The cost of making six water main extensions has been submitted to the Servers by T. J. Heffernan, Superintendent of Construction; they are: Vincent st., connected to Stillwater, \$54.82; McOwen st., connected to Stillwater, \$45.90; Pioneer st., connected to Stillwater, \$41.68; Stillwater, from Locust to Bond, \$2,415.40; Bond, connected to Stillwater, \$90.16; Helena, connected to Stillwater, \$42.85; all these connections are in furthering the improvement for the additional water supply in Riverdale.

**Niles, O.**—Council is considering the extension of water and sewer mains at a cost of \$5,000.

**Caddo, Okla.**—City has decided to construct water works; cost \$50,000.

**Cordell, Okla.**—Citizens will vote on \$27,500 bonds for water works extension.

**Durant, Okla.**—City has not yet engaged Engineer for proposed construction of concrete settling basin of 1,000,000 gallons capacity; \$20,000 bonds are available.

**Granite, Okla.**—Citizens have voted \$30,000 water bonds.

**Holdenville, Okla.**—Bids will be received July 7, 7:30 p. m., for the construction of water works improvements and sanitary sewers; work includes the construction of a concrete dam and storage reservoir and the laying of seven miles of 6-in., 8-in. and 10-in. water main.—The Mackintosh-Barbour Co., 434 Bassett Bldg., Oklahoma City, Engineers; I. A. Draper, City Clerk.

**Kanawa, Okla.**—Bids will be received in July for the construction of water works and an electric light plant.—McIntosh-Barbour Co., Oklahoma City, Engineers.

**Krebs, Okla.**—Citizens have voted \$50,000 bonds for water works.

**Wapaunka, Okla.**—Citizens have voted \$45,000 water works and electric light bonds.

**Joseph, Ore.**—Bids will soon be received for furnishing and establishing a system of water works; \$20,000 bonds have been sold.—F. F. Scribner is interested.

**Duquesne, Pa.**—Borough is considering the laying of a direct pumping line to the standpipe.

**Morrisville, Pa.**—Citizens have voted \$20,000 bonds to acquire the Morris Heights water plant and for street improvement purposes.

**Reading, Pa.**—Council is considering an ordinance to make an additional appropriation to the department for the fiscal year of 1909-1910 from the funds of the Department of Water, as follows: For new mains, \$8,000; for operating the gravity supplies, reservoirs and distribution system, \$15,000; for pumping mains No. 2, \$5,500.

**Central Falls, R. I.**—The Committee on Finance will recommend a \$5,500 appropriation for the purchase of new water pipe.

**Centerville, S. D.**—Citizens have voted to extend the water mains and set additional hydrants.

**Binghamton, Tenn.**—City has issued \$40,000 bonds to construct proposed water plant and sewer system.—J. A. Omberg, Goodwyn Institute, Memphis, Tenn., Engineer-in-Charge.

**Lynnville, Tenn.**—City will install a water works and electric light system.

**Mount Pleasant, Tenn.**—Citizens have voted \$65,000 bonds for construction of water works; gravity system.—J. P. Warnock, Mayor.

**Alba, Tex.**—City has decided to expend \$20,000 in improvements to water works, including tank or steel tower; 4-in. mains will be laid.

**Dallas, Tex.**—Mayor Hay has recommended the installation of the meter system for consumers in the water department.

**Dallas, Tex.**—The Trinity National Bank,

City, has purchased \$475,000 water bonds at a bid of 96.56.

**Dallas, Tex.**—At a cost not to exceed \$20,000, the city is to place a centrifugal pump of 12,000,000 to 15,000,000-gallon capacity near Bachman's reservoir; this is for the purpose of filling the reservoir and keeping it filled by pumping from Elm Fork of the Trinity at such times as there is a flow of the water over Record Crossing dam; this has been recommended by J. M. Bassett, Water Engineer.

**Mt. Pleasant, Tex.**—Citizens have voted to issue bonds for extending the water works system.

**Palestine, Tex.**—The Palestine Water Works Co. has decided to drill additional wells to increase water supply.—William Branagan, President.

**Temple, Tex.**—Citizens have voted \$100,000 bonds for improvements to water works; cost \$250,000.—William Guinuth, Mayor.

**Tyler, Tex.**—City will lay about two miles of 6-in. mains; if proposed \$11,000 bonds are voted, bids will be advertised for material and construction.—John H. Bonner, Mayor.

**Sherman, Tex.**—Chief Arnold has recommended the extension of the mains and fireplugs in the Frisco and Moore additions and south of the sanitarium.

**Ephraim, Utah.**—That Ephraim will have a water works system is almost an assured fact; Council has granted franchise to B. F. Smith, of Salt Lake, the franchise to be accepted within 30 days, and the work to be commenced within three months.

**Irondale, Wash.**—Citizens are considering extension of water system.

**North Yakima, Wash.**—North Yakima will try municipal ownership of its water system; Council has voted to make an offer of \$222,000 for the Northwest Light and Water Co.'s system, which includes water mains, right and pumping machinery; if the company does not accept the offer it is likely that condemnation proceedings will be begun.

**Tacoma, Wash.**—Council favors a gravity system for Tacoma; Councilman S. L. Wilkeson's resolution instructing Commissioner of Public Works H. J. McGregor to proceed with the construction of a gravity system has been recommended for adoption.

**Tacoma, Wash.**—The city Water Department will purchase 40,000 ft. of galvanized 4-in. iron pipe; bids will be called for soon.

**Vancouver, Wash.**—Mayor John P. Higgins is urging installation of water works.

**Green Bay, Wis.**—The Green Bay Water Co. officials and the Committees on Fire Department and Water Supply are considering the laying of mains in outlying streets where mains have been ordered laid.

**La Crosse, Wis.**—The City Engineer has recommended that a skimming station and pumping station be located at the north end of Riverside Park.

**Madison, Wis.**—All bids for the \$35,000 water extension bonds have been rejected because the premiums were too high and the city was to pay the cost of the bond blanks and attorney's fees.

**Hull, Que., Can.**—Council will ask the ratepayers to sanction the expenditure of \$30,000 on the purchase of new water works pumps and \$23,000 for extensions.

**Ste. Anne de Bellevue, Que., Can.**—Town will grant a franchise for the construction of a water works system.—J. Boileau, 26 St. James st., Montreal, is interested.

## BIDS RECEIVED AND CONTRACTS AWARDED

**Denver, Col.**—Contracts were awarded on June 17 by the Denver Reservoir Irrigation Co. to the Kenifick-Quigley-Russell Construction Co., of Kansas City, Mo., for the enlargement of the Barr Lake dam and the construction of 40 miles of canals; cost, \$500,000; the contract provides for raising the dam 10 ft., which will give a storage capacity of 10,000 acre-ft. and will bring under irrigation a large tract of new land in the Denver-Creeley Valley irrigation district.

**Ft. Oglethorpe, Ga.**—The contract for construction of an additional well at Ft. Oglethorpe has been awarded to John Fenton and J. M. McDonald, of East Chattanooga, Tenn., at \$8,000.

**Delphos, Kan.**—The contract for the construction of the water works and electric light plants has been let to Squires Electric Light & Construction Co., of Kansas City, for \$26,940; bonds to the amount of \$30,000 have been voted, \$20,000 for the water plant and \$10,000 for the electric lighting plant.

**Louisville, Ky.**—A permit was issued on June 17 to the Louisville Lighting Co. to build a concrete reservoir at 15th and Magazine sts.; it is to be 130 x 90 x 56 ft. and is to cost \$10,000; the National Concrete Construction Co. has charge of the work and expects to have it completed by the middle of August.



**Kennard, Neb.**—The National Construction Co., South Bend, has been awarded contract, at \$6,631, for constructing a complete water works system for the city.

**Albany, N. Y.**—The bids received by the Board of Contract and Supply, June 21, for 150 net tons of 6-in. pipe for the Bureau of Water were: U. S. Cast Iron Pipe & Foundry Co., 71 Broadway, New York, \$22.95 per ton, 30 days to complete; C. Millar & Sons Co., Utica, N. Y., \$22.50 per ton, 20 days; Camden Iron Works, Camden, N. J., \$23.50 per ton, 21 days; contract was awarded to C. Millar & Sons Co., of Utica, N. Y.—Harry J. Deutchhelm, Superintendent of Water Bureau.

**Governor's Island, N. Y. H., N. Y.**—Bids were opened, June 15, by I. W. Littell, D. Q. M., Ch. Q. M., U. S. Army, for building shelter, installing fire pump and extension of salt water mains at this post, and the contract has been awarded to Lawrence J. Rice, of New York City, for \$6,921.

**New York, N. Y.**—Bids were received as follows, June 23, by John H. O'Brien, Commissioner Water Supply, Gas and Electricity for furnishing and delivering double nozzle standard New York hydrants and repair parts for the same: Kennedy Valve Co., 57 Beekman st., \$6,607; John Fox & Co., \$6,875; Chapman Valve Co., \$6,982; M. J. Drummond, \$6,905; A. P. Smith Mfg. Co., Newark, N. J., no total.

Bids were also received for hauling and laying water mains and appurtenances in Kings Highway, Avenue L, East 36th st. and East 32d st., Borough Brooklyn: Murphy Bros., 25th and Croysey ave., Brooklyn, \$6,086; John J. Cashman, \$8,104; Newman & Carey Co., \$6,662; Robert Carter & Co., \$6,666; Goodman Contracting Co., \$9,330; James Kelly, \$6,468; George H. Gifford, \$7,364; Joseph Cripple and Michelo Distepens, \$7,010.

**Plattsburg Barracks, N. Y.**—Bids were opened by the Construction Quarter Master, U. S. Army, June 11, for constructing a filter house, electric wiring same, and contract has been awarded to Hungerford & Terry at \$6,445; for furnishing and installing a pressure filter with a capacity of 600 gal. per minute, contract awarded to John J. Fitzpatrick & Sons, of New York City, for \$2,646.

**Columbus, O.**—The contract for drilling wells and installing the pumping plant at the new Columbus Postoffice building has been awarded by the Treasury Department to the Weinman Pump Manufacturing Co., of Columbus, at its bid of \$1,945.

**Carmen, Okla.**—Bids were opened, June 21, by the Chairman of the Board of Trustees for constructing water works, including cast iron pipe, hydrants and valves, pumping machinery and boilers, and were informed that the contract has been awarded to the O'Neill Engineering Co., of Dallas, Tex.; approximate cost, \$27,500.

**Nashville, Tenn.**—Several contracts have been awarded by the Board of Public Works for various supplies. Keith, Simmons & Co. was awarded the contract for furnishing pig lead for the special suburban water main department at \$1.57 per cwt. J. H. Fall & Co. bid only half a cent more per cwt.

The contract for split T's for the special suburban water main department was awarded to the Waterworks Equipment Co., of New York, at \$100 for 24x12 and \$80 for 18x12.

**Kingsville, Tex.**—Kingsville Power Co. has been awarded contract to Rathbun-Jones Engineering Co., Toledo, O., for installation of complete water works.

**Grundy, Va.**—J. D. Shott, Bluefield, W. Va., has contract to construct water works, including concrete reservoir to have capacity of 50,000 gals., 580 ft. 4-in. piping, etc.

**Highland, Wis.**—Bids were opened, June 8, for constructing 4,000 ft. 4-in. cast iron water main, and the contract has been awarded to J. M. Healy & Co., of Chicago, Ill., for about \$3,300.—A. J. Egan, Village Clerk.

**Cheyenne, Wyo.**—Bids were opened, June 15, for the laying of water supply mains and contracts have been awarded as follows: Doyle & Schwartz, of Colorado Springs, Col., for 20,400 ft. 16-in. main, 31c. per ft., total \$6,324; also for 24,734 ft. 30-in., 47c. per ft. total \$11,625; and to Bash & Gray, of Joplin, Mo., for 85,400 ft. 20-in., 39c.; total \$33,306; trench to be excavated 1s of such a nature machine can be used almost the entire distance; the pipe in each case to be put to a depth so that it will have 3 ft. of cover; the pipe, special castings, lead and jute will be furnished and distributed on the ground by city.—C. C. Carlisle, City Engineer.

**Ft. Yellowstone, Wyo.**—Bids were opened at the office of Lieut. G. C. Smith, Construction Quartermaster, for constructing reinforced concrete reservoir for hydro-electric power plant at this post, and contract has been awarded to the D'Olier Engineering Co., 119 South 11th st., Philadelphia, Pa., for \$25,400.

## LIGHTING AND POWER

**Benson, Ariz.**—The Benson Water Co. is considering installation of an electric light plant.

**Phoenix, Ariz.**—J. W. Sharpe has asked for a franchise to construct and operate a gas and electric light plant.

**Tempe, Ariz.**—The South Side Gas Co. has instructed H. L. Chauder and O. S. Stapley to purchase enough pipe to lay about 17 miles of gas mains; a gas plant will also be constructed at a cost of \$45,000.

**Eureka, Cal.**—Mayor Ricks is urging plans for the erection of a power plant on the ocean front to develop power for the operation of a salt-water fire protection system.

**Glendale, Cal.**—Citizens have voted \$60,000 bonds for the construction of a new municipal electric light plant.

**Oakland, Cal.**—The residents of the large new territory east of Lese ave. north of East 14th st., Fruitvale and Melrose district are agitating the problem of better lighting facilities for that territory.

**Sacramento, Cal.**—The Street Committee and City Engineer have submitted a report on the plans for the underground conduit system submitted to the Board by the Sacramento Electric, Gas and Railway Co.; plan consists of main lines on J and K sts., with cross lines on the side streets and lines in the alleys where possible; report stated that streets will be torn up in every direction while the system is being installed; Committee recommended that the plan be accepted as a tentative plan and not as final.

**Denver, Col.**—The Denver Gas and Electric Co. has decided to rebuild its generating plant, recently damaged by an explosion.—Frank W. Frueauff, General Manager.

**Hartford, Conn.**—A better system of street illumination in City Hall square has been planned; arrangements have been made for the installation of additional underground services in advance of the repaving of City Hall square, so that more lights can be installed at any time without disturbing the new pavement.

**Dover, Del.**—The Mississippi Valley Gas, Oil and Pipe Line Co. has obtained charters to engage in the purchase and prospecting for oil and the construction of gas lines and developing gas and oil lands. The incorporators are Lewis E. Denning, William B. Dean, Jr., Harry B. Hawes and William Schaeffer, all of St. Louis, and Harry W. Davis, of Wilmington. The capital stock is \$50,000.

**Dover, Del.**—The Marriet Oil and Gas Co. has been incorporated to engage in the business of buying oil and gas lands and developing the same. These incorporators are W. F. Simon and J. G. Vincent, both of Pittsburg, and F. M. Shive, of Wilmington. The capital stock is \$100,000.

**Washington, D. C.**—The Commissioners have ordered the erection of additional 40-c.p. electric incandescent lamps on underground circuits at the following points: Seven on Cathedral ave. between Connecticut ave. and Woodley road, northwest county; six on Cathedral east of Connecticut ave., northwest county, and four on 27th st. between Garfield st. and Cathedral ave., northwest county. Electrical Engineer Allen, on whose recommendation these orders were issued, also suggested that the five electric incandescent lamps on Cathedral ave. between Connecticut ave. and Woodley road, northwest county, now on wooden poles and overhead line, be discontinued.

**Alachua, Fla.**—Arrangements are about completed whereby the city is to be lighted with a new acetylene gas system, furnishing lights not only to the streets but to the business houses and residences of the place.

**Bayboro, Fla.**—The St. Petersburg Electric Light and Power Co. will establish electric light plant at this place.

**Jacksonville, Fla.**—City is considering plans for the extension of the municipal street lighting system by the installation of 100 or more magnetite arc lamps.—R. N. Ellis, Superintendent.

**Bremen, Ga.**—Citizens have voted \$8,000 bonds for construction of electric light plant.

**Elberton, Ga.**—Council is considering arrangements to increase capacity of electric light plant or otherwise securing additional power; \$5,000 bonds are available.—Park A. Dallis, Atlanta, Consulting Engineer.

**Harrisburg, Ill.**—The Saline County Light and Water Co. has been incorporated with a capital of \$5,000 for the purpose of producing and distributing electricity, water, ice and steam.—A. C. Murray, Walter I. Murphy, W. M. Timmons, Incorporators.

**La Salle, Ill.**—The Chicago, Ottawa & Peoria Railway Co. is about to increase the capacity of its power plant, and if terms can be made with the Commissioners of the I. & M. Canal the power line may be built along the canal from Split Rock to

Joliet; at the present time the company's pole line between La Salle and Split Rock is constructed along the tow-path, and if arrangements can be made the line will be extended to Joliet; this arrangement will enable the company to compete with the W. D. Boyce Co., which has a pole line on the other side of the canal.

**F. E. Brumagim** will purchase two 400-h.p. tube boilers for the McKinley interests in that city; boilers will be used in the local power house, which is to have its facilities enlarged. Complete details are as yet not ready; extension of the line to Streator will necessitate this step, and specifications are now being considered. Electric power for the Chicago, Ottawa & Peoria interurban line and for the Citizens' Lighting Co. of La Salle is generated at the same plant, and the increased demands for current make the additions imperative.

**Ottawa, Ill.**—W. D. Boyce will ask Council for an electric light and power franchise.

**Spring Valley, Ill.**—The Spring Valley Electric Light Co. is considering the rebuilding of its entire system.—Charles Robinson, Manager.

**Hagerstown, Ind.**—Messrs. Hancock and McMillan have been granted a franchise for the construction and operation of an electric light and water plant.

**Seymour, Ia.**—City is considering rebuilding of municipal electric light plant.—F. Kellogg, Superintendent.

**Ashland, Kan.**—Plans are being prepared by J. S. Worley Co., Kansas City, Mo., Engineers, for an electric light plant.

**Lindsborg, Kan.**—City will install at the municipal electric light plant a 100-h.p. engine and a 150-kw. generator, A. C. three-phase.—M. H. Blaine, Superintendent.

**Nickerson, Kan.**—Council is considering the installation of a municipal electric light plant and water works system.

**St. John, Kan.**—Citizens have voted to issue bonds for an electric light plant.

**Thurmont, Md.**—Citizens are urging the installation of an electric light plant.

**Walkersville, Md.**—Town will install an electric light plant, furnishing light for town and commercial purposes.

**Easthampton, Mass.**—The Connecticut River Power Co. has purchased the Easthampton Gas Co. outright and is planning improvements and better service, especially in the electric department.

**Haverhill, Mass.**—Alderman Harris, who has been appointed Supervisor by the Municipal Court, has signed the agreement with the Haverhill Electric Co. for the construction of underground conduits and the burial of wires in Water, Merrimac and Washington sts.

**Worcester, Mass.**—The Connecticut River Power and Transmission Co. has petitioned the Board of Aldermen for permission to enter the city for the purpose of furnishing electricity for lamps and motors.

**Worcester, Mass.**—That Wareham will have electric lights within six months is practically a certainty, as the voters have decided unanimously to instruct the committee to make a contract for the purpose; lighting of the streets and the induction of lights in the houses means a big step in advance for the town.

**Albany, Minn.**—Council will sell \$7,000 bonds; proceeds will be used for establishing a lighting system for streets, public buildings and for commercial and private use.

**Anoka, Minn.**—Citizens have voted to issue \$40,000 bonds for the purchase and \$20,000 bonds for the improvement of the electric light and water plants.

**Princeton, Minn.**—Council will install a storage battery in the power house; cost \$3,000.

**Rochester, Minn.**—Citizens will vote on bonds for the erection of a new electric plant.

**Eldorado Springs, Mo.**—B. F. Proctor has decided to establish electric light plant.

**Monett, Mo.**—Citizens will soon vote on \$35,000 bonds for the construction of a municipal electric light plant.

**Springfield, Mo.**—Council has passed the measure granting an extension of the franchise of the Springfield Electric and Gas Co.

**Fallon, Nev.**—This city, the metropolis and county seat of Churchill County, is already tired of a power plant operated by a corporation and wants a municipal plant; with this plan in view, several prominent men of Fallon are advocating a bond issue for the purchase of a power site on the Government canal of the Truckee Carson Irrigation project.

**Cuyahoga Falls, N. Y.**—Village will receive bids July 10, noon, on \$4,000 electric light improvement bonds.—C. D. Crumb, Clerk.

**Hilton, N. Y.**—John E. Cooper has been granted a franchise for the erection of transmission lines for the distribution of electricity for lamps and motors.

**Poughkeepsie, N. Y.**—The Poughkeepsie Light, Heat and Power Co. is soon to install a 2,000-kw. turbo generator, with nec-

essary boilers, pumps, etc., to take care of their rapidly increasing business.

**Tonawanda, N. Y.**—The Kose site on Fillmore ave. has been purchased by this city and the Gastown sewer lifting station will be constructed there; work on the sewer system will be completed by September 1.

**Weaverville, N. C.**—City is considering the issuing of \$5,000 bonds for street lighting and other improvements.

**Beach, N. D.**—Council is considering a petition for a franchise for an electric light and water works plants.

**Fargo, N. D.**—Council, after considering the resolution authorizing an election for the issue of bonds for the construction of an electric light and water plant, has refused to pass the resolution.

**Mt. Healthy, O.**—Council has granted the Mt. Healthy Power and Light Co. a 25-year franchise to furnish electricity and gas.—Paul Hoover and B. Seever, Hamilton, are interested.

**Toledo, O.**—Council has decided to improve by lighting C st., Robinson and Indiana aves.—J. M. Babcock, Clerk.

**Ardmore, Okla.**—Oscar Ayres will build a water power plant on Washita River in connection with construction of railway.—M. T. Forsythe, West Chester, Pa., Engineer.

**Cordell, Okla.**—Citizens will vote on \$10,000 bond issue.

**Durant, Okla.**—Citizens will soon vote \$20,000 bonds for the installation of an electric light plant.

**Granite, Okla.**—Citizens have voted \$15,000 for electric light bonds.

**McCurtain, Okla.**—The City Electric Light and Power Co. has decided to construct an \$8,000 plant.—O. C. Gleim, Engineer.

**Pond Creek, Okla.**—The Jefferson Power and Improvement Co., just organized, will utilize the waters of Salt Fork and Pond Creek for power purposes; waters of Salt Fork will be conveyed by a ditch to Pond Creek, where a power station will be erected; a dam will be constructed and some water forced over a fall some 20 ft., where turbine wheels will be cased to create the power, which is estimated will be about 2,500 h.p.; this will be distributed to factories in Pond Creek.

**Wapauunca, Okla.**—Citizens have voted \$45,000 electric light and water bonds.

**Wetumka, Okla.**—The Franklin Construction Co., of St. Louis, Mo., has submitted a proposition regarding the erection of an electric light plant.

**Medford, Ore.**—E. A. Marsh has petitioned for a 10-year franchise for the Medford Light, Heat and Power Co. to construct, equip and maintain an electric light and power system.

**Milbank, S. D.**—City is considering installation of an electric lighting system.

**Dallas, Tex.**—The Chamber of Commerce will soon ask the business houses on Elm, Main and Commerce sts., to sign up for Tungsten lamps for those thoroughfares; it is proposed to light the three streets with these lamps from Austin st. to Ervay st.

**Hyrum, Utah.**—Council will remodel the municipal electric light plant so as to increase the service; transmission line will be extended to the town of Wellsville to furnish electricity for lamps.

**Price, Utah.**—The Town Board will soon take action on a proposition to install a municipal electric lighting plant.

**Norfolk, Va.**—The Portsmouth & Norfolk Corporation has decided to construct electric light and power plant.—T. J. Wool, President.

**Norton, Va.**—City has sold electric light franchise to J. B. Sterrett, city, for \$3,000.

**Friday Harbor, Wash.**—The Pacific Electric Co., Port Townsend, has applied to Council for a 50-year light and power franchise.

**Prosser, Wash.**—Harry Benson, Manager local power company, has completed plans for a power plant to develop the power of Yakima River and supply light and power for surrounding cities.

**Tacoma, Wash.**—The Tacoma Gas Light Co. is considering gas main extensions into certain North End districts.—W. A. Aldrich, General Manager.

**Fayetteville, W. Va.**—City has granted R. H. Dickinson franchise to construct electric lighting system.

**Antigo, Wis.**—F. A. Hecker, Charles M. Cleveland and John Manser are considering the purchase of the Antigo Electric Power Co.

**Antigo, Wis.**—The Antigo Electric Co. will rebuild its plant this summer and will change the system from direct to alternating-current.—Charles M. Cleveland, Manager.

**Friendship, Wis.**—Citizens are considering installation of an electric light plant.

**Milwaukee, Wis.**—The South Side Steel and Malleable Casting Co., Windlake and 14th aves., will erect a \$5,000 power plant as an addition to its present building.

**Toronto, Ont., Can.**—City will soon ask for bids for electric motors and turbine pumps.

## BIDS RECEIVED AND CONTRACTS AWARDED

**San Francisco, Cal.**—The contract for street lighting during the coming fiscal year was awarded by the Artificial Lights Committee of the Board of Supervisors to the San Francisco Gas and Electric Co., the only bidder, at a figure which will amount to about \$340,000. The charge for gas is .06548 cents per lamp for each night, and for electricity .20712 cents per lamp a night. The figures are considerably lower than last year, but by an increase in the number of lamps the disbursement will be about the same. Before the award was made Supervisor Johnston engaged President John A. Britton in a parley over a promise he had made to the Board in 1906 to place on Market st. ornamental lamps, but Mr. Britton declared that he would not attempt to keep the promise while the attitude of the Board was unfair to his company.

**San Jose, Cal.**—Upon the recommendation of the Finance Committee the bid of the United Gas & Electric Co. for lighting the municipal building, clock tower and electroliers was accepted.

**Des Moines, Ia.**—Contracts aggregating \$272,000 for work on its Des Moines plant and system were let, June 21, by the Des Moines Electric Co. W. H. Brereton secured the contract for the building at \$67,000; structural steel in the plant and the huge smokestack will be furnished by the Des Moines Bridge & Iron Co.; in addition to the contracts for the plant the contracts for putting the wires underground in the business section of East Des Moines were let to the Turner Improvement Co. at \$80,000; from Grand ave. to Court ave. and the river to Pennsylvania ave. all the wires and poles will be taken down and put in underground conduits.—Paul B. Sawyer, General Manager.

**New Orleans, La.**—The Mayor opened bids, June 23, for the installation of electrical fixtures in the several departments of the City Hall annex; the bid of the Standard Electric Co., in the sum of \$1,957.20, was accepted, the contract being to install the fixtures in the office of the Board of Health fire alarm, Board of Fire Commissioners, City Archives, Civil Service and State Board of Assessors.

**Holyoke, Mass.**—Preparations are being made at the new purifiers that have been ordered for the gas works, and the work of clearing a place and laying the foundations is well under way; four purifiers have been ordered from the Isbell-Porter Co., of Newark, N. J., the contract price being \$12,000. The purifiers are built to order, so the exact time of their shipment is not known.

**Pittsfield, Mass.**—The Pittsfield Coal Gas Co. has awarded contract to the Cruse-Kember Co. to build a gas holder of 750,000 cu. ft. capacity; it will be built of steel, 131 ft. high and 109 ft. in diameter and cost about \$50,000.—H. C. Crafts, Superintendent.

**Westfield, Mass.**—Bids for the installing of the addition to the municipal electric power plant were opened June 30 by the Selectmen, Superintendent George Pettibone and Clerk Charles N. Oakes also were present, and of the bids submitted the General Electric Co. was lowest, but it will be necessary to go over the figures and plans carefully to determine whether or not all the specifications have been complied with. This will probably take several days and it will be some time before the contract is awarded. The bids were for both 500 and 750-kw. engine, dynamo, switchboard exciter and condenser. The engine may be horizontal, turbine or the cross compound type, and must be installed on a floor space 21 by 36 ft. The bids submitted were as follows: Westinghouse Co., 750 kw. \$22,330, 500 kw. \$17,340; Allis-Chalmers Co., 750 kw. \$24,933, 500 kw. reciprocating engine \$18,979, 500 kw. steam turbine \$19,357. The General Electric Co. made a bid and several other companies submitted bids for the engine alone, but these will probably not be considered. It is believed that the turbine engine will be favored. The municipal power plant has proved a great success since it was installed and at the present time it is not able to accommodate all who wish to buy power from the town. This the addition will remedy.

**Detroit, Mich.**—On June 14 the Public Lighting Commission awarded contract for building conduit on Grand River ave., from Washington ave. to 12th st., to Charles B. Cole; estimated cost, \$14,803.

**Bridgeport, N. J.**—George H. Platt, city, has been awarded the contract to build the proposed gas plant for the town.

**Fort Hamilton, N. Y.**—Bids were received by the Constructing Quartermaster, June 15, for an electric lighting system and substation, and the contract has been let to Coburn & Cooke, of Newport News, Va., at \$21,174.

**New York, N. Y.**—The following bids were

received June 28 by C. B. J. Snyder, Superintendent of School Buildings, for installing electric equipment in Girls' High School, on the easterly side of Nostrand ave., between Halsey and Macon sts., Borough of Brooklyn: T. F. Jackson, Inc., 94 John st., \$18,995; Cowden & DeYoung, 45 East 42d st., \$19,700; Griffin & Co., 150 Nassau st., \$21,714; E. J. Duggan, 1133 Broadway, \$20,800; Commercial Construction Co., 114 Liberty st., \$22,948; New York Construction Co., 1328 Broadway, \$20,543.

**Syracuse, N. Y.**—The Wheeler-Green Electric Co. has been awarded a contract to erect, maintain and dismantle a decorative street lighting scheme for the city during the State Fair and Ka-noo-no Carnival of 1909.

**Dayton, O.**—The contract for furnishing and installing the engine and generator for water works pumping station, to supply electric power and light for the station, the asphalt repair plant, and the work on the wells, was awarded to the Brownell Boiler Co. by the Service Board; the contract price was \$1,500, and although the bid of the Brownell Co. was not the lowest submitted, it was the lowest that complied exactly with the specifications and was the best, according to the Engineers, H. Thomassen and Lou Weaver. The Engineers submitted a letter, showing that by the installation of the private power plant the lighting bills could be reduced from \$3.72 to \$1.24 per day, so that the proposition of the Dayton Lighting Co., to install the tungsten lamps, thereby reducing the light bills 50 per cent, was ignored. The Servers will have to construct a cement foundation for the new apparatus.

**Richwood, O.**—Bids were received June 19 by Ray L. Jordan, Village Clerk, for lighting the streets with 35 or more arc lamps of not less than 200 c.p. for a period of ten years. The contract has been let to Edward A. Schambi, at \$62.50 a light per year.

**Hobart, Okla.**—The Oklahoma Midland Electric Railway Co. awarded contract to J. A. Kauffman Co., of Dayton, O., and Lafayette, Ga., to construct two 8,000-h.p. water power plants.

**Slatington, Pa.**—Contract for lighting streets for period of five years has been awarded to Lehigh Valley Transit Co., of Allentown, at \$77 per year for arc, all-night service, and \$17 per year for 32-c.p. Tungsten lamps.—A. N. Kennel, Secretary Borough Council.

**Kingsville, Tex.**—The Kingsville Power Co. awarded contract to Rathbun Jones Engineering Co., Toledo, O., for installation of complete water works and electric lighting machinery outfit, including 150-h.p. vertical type, three-cylinder gas engine to replace present system.

**Fort Hunt, Va.**—United States Government has awarded contract to G. & W. Manufacturing Co., 26 Cortlandt st., New York, for power plant at Fort Hunt; contract including installation of boilers, generators, pumps and compressors.—Capt. H. L. Pettus, Constructing Quartermaster, Takoma Park, D. C.

**Pullman, Wash.**—The Board of Directors of the Washington State College has awarded the contract for additional plant to H. A. Glaze, city, for \$17,000.—E. A. Bryan, President.

**Kamloops, B. C., Can.**—Bids were received by J. J. Carment, City Clerk, for steam and electric machinery to cost about \$13,000; contract for engine and alternators has been let to the Canadian Westinghouse Co., Sovereign Bank Bldg., Montreal, Que.; contract for boilers and condensers has been let to the Canadian Fairbanks Co., 444 St. James St., Montreal.—H. K. Dutcher, Flack Block, Vancouver, B. C., Engineer.

**Winnipeg, Man., Can.**—The Robt. Mitchell Co., city, has secured contract for installing electrical fixtures in the new Grand Trunk Pacific Depot for \$30,000.

**D'Israeli, Que., Can.**—The St. Francis Hydraulic Co. has placed an order with the Canadian General Electric Co. for three 300-h.p. Canada water tube boilers, with one 1,000-k.w., 2,300-volt, 3-phase, 60-cycle turbine driven generator.

## FIRE EQUIPMENT

**Pratt City, Ala.**—Citizens will vote on \$15,000 Fire Department bonds.

**Bakersfield, Cal.**—City will secure sites for two new engine houses; equipment will also be secured.—Address Chief Gundlach.

**Oakland, Cal.**—Citizens will vote July 7 on \$20,000 bonds for the purchase of equipment for the Fire Department.

**Roseville, Cal.**—Town is considering the improvement of its fire service.

**Manitou, Col.**—City will establish a paid department and increase the fire-fighting facilities.

**Hartford, Conn.**—The Board of Aldermen is considering a resolution authorizing the Fire Board to purchase 3,000 ft. of fire hose.



**Wilmington, Del.**—The Reliance Fire Co. is considering the purchase of an automobile chemical engine.

**Washington, D. C.**—Chief Wagner is urging the adoption of automobile hose wagons and trucks.

**Atlanta, Ga.**—City will purchase an auto for Chief Cummings; \$4,000 is available.

**Macon, Ga.**—City will soon select site for proposed engine house to be erected in Vaneville.

**Aurora, Ill.**—Council has authorized the Fire and Water Committee to purchase 350 ft. of mill hose, a mill reel and nozzle for fire protection at the city power plant; also three lengths of new hose for the East Batavia Fire Co.

**Sterling, Ill.**—Architect L. A. Blood is drawing plans for a new fire station.

**Charles City, Ia.**—City will organize a new Fire Department; an automobile will be secured.—Mayor Legel.

**Muscatine, Ia.**—City has authorized the purchase of a new hose wagon.

**New Orleans, La.**—Council has adopted ordinance providing for a combination fire engine house in the Twelfth Ward.

**New Orleans, La.**—City is considering the erection of a fire station in the Thirteenth Ward.

**Biddeford, Me.**—City will expend \$8,150 for apparatus.

**Long Island, Me.**—Citizens are urging need of fire protection.

**Topsham, Me.**—Citizens have voted to purchase several hundred feet of hose.

**Milford, Mass.**—Town will expend \$1,800 on repairs of engine No. 2.

**Springfield, Mass.**—Council is considering the purchase of new trucks.

**St. Louis, Mo.**—Architect Frank Hueser is drawing plans for two \$18,000 fire stations for Companies No. 50 and 51.—W. B. Dryden, Secretary Board of Public Improvements.

**Bozeman, Mont.**—Council has just made provision for the installation of an electrical fire alarm system, and the City Clerk has advertised for bids for 12 non-interfering fire alarm boxes with glass key guards, one tower bell striker large enough for a 1,600-pound bell, one 8-in. gong and indicator for the engine house, one combination battery and test board for four circuits, a battery equipment of 16 storage batteries with a motor generator for charging and five miles of galvanized iron wire.

**Missoula, Mont.**—City is planning to increase fire department and to install an adequate fire alarm system.

**Camden, N. J.**—Council is considering a \$25,000 bond issue for the erection and equipment of an engine house at 10th st. and Kayn ave.

**Jersey City, N. J.**—There will be included in the estimate of the Fire Department appropriations for the fiscal year beginning December 1 next an item for automobile runabouts for the Chief and Assistant Chief and perhaps for the Battalion Chiefs as well.—Address Chief Conway.

**Clarkson, N. Y.**—Citizens are raising funds for the purchase of a hose cart.

**Goshen, N. Y.**—Walton Hose Co. will purchase a combination chemical and hose wagon.

**Hoosick Falls, N. Y.**—Town is considering purchase of a ladder truck.

**Tarrytown, N. Y.**—City is considering purchase of 2,000 ft. of hose.

**Watervliet, N. Y.**—City will purchase 1,500 ft. of hose.

**Yonkers, N. Y.**—City is considering purchase of 3,000 ft. of hose.

**Franklin, Pa.**—The Fire Committee is considering purchase of an automobile truck.

**Harrisburg, Pa.**—Superintendent C. E. Diehl, of the fire and police alarm telegraph, has recommended that a permanent location be obtained for the apparatus.

**Harrisburg, Pa.**—Fire Chief Garverick has recommended the purchase of a combination chemical and third size engine for the Shamrock No. 11 and a combination chemical for the Good Will No. 7.

**Temple, Tex.**—Council has purchased a site in South Temple and will erect a sub-fire station which will be equipped with modern apparatus.

**Portsmouth, Va.**—The Finance Committee is considering an appropriation for the purchase of 3,000 ft. of hose.

**Tacoma, Wash.**—The Council Judiciary Committee has recommended the ordinance providing for the employment of F. A. Ballin to draw up plans and specifications for a fire tug.

**Orfordville, Wis.**—Council has voted to buy a hook and ladder truck, a 50-gallon chemical engine and 100 ft. of hose.

## BIDS RECEIVED AND CONTRACTS AWARDED

**Amesbury, Mass.**—At a meeting of the Committee on the New Fire Station to open bids for the erection of the new Elm st. fire station, bids were put in as follows:

Horace Bailey, Haverhill, \$11,958; H. P. Converse & Co., Boston, \$10,450; F. A. Doe, of Amesbury, \$9,350; John J. Flynn & Son, Salem, \$8,981.

**Hull, Mass.**—The town has contracted for the purchase of an automobile fire engine; the engine will cost \$8,000 and throws 700 gallons of water a minute; it is provided with a 70-h.p. pump and has a speed of 60 miles an hour.

**Kearny, N. J.**—Bids were received for a new hose wagon for Highland Co., but on motion of Councilman Wilkie the awarding of the contract was deferred until the Fire Committee had had a conference with the Chief Engineer relative to the merits of the various machines; the bidders and the figures for which they will furnish the apparatus are: American La France Co., \$1,795; James Boyd, Brother & Co., Philadelphia, \$1,410; Accurate Fire Extinguisher Co., of Newark, \$1,448; Zanesville Chemical Engine Co., \$1,400; Combination Ladder Co., \$1,550; Kanawha Chemical Engine Co., \$1,850.

**Reading, Pa.**—Contract for 1,000 ft. of rubber hose, 2½ inches, has been let to Hoff & Bro., at \$1.10 per lin. ft.

## ELECTRIC RAILWAYS

**Phoenix, Ariz.**—The Suburban Railway has been incorporated to build an electric railway.—C. B. King, B. A. Fowler, J. W. Dorris, Geo. M. Halm and E. J. Bennitt, Directors.

**Colfax, Cal.**—W. S. Fletcher, a well-known mine operator of Forest Hill, contemplates making application to the Board of Supervisors for a franchise to build an electric railway between Colfax and Forest Hill for freight and passenger traffic, its route to be along the public road between those places; he will agree to begin operations within 30 days.

**Los Angeles, Cal.**—The Pacific Electric Railway has petitioned Council for a franchise to operate a street railway on 6th st. between Olive st. and Figueroa st.

**Los Angeles, Cal.**—The Ontario & San Antonio Heights Co. will let a contract at once for grading necessary to the extension of its electric railway from Upland through Claremont to North Pomona, a distance of about six miles; total cost of construction will be approximately \$200,000.

**Oakland, Cal.**—With the securing of a right-of-way 60 ft. in width the Southern Pacific Co. has announced plans for the extension of its electric system in Alameda county; plan is to extend and electrify the lines from Melrose, which is now the eastern terminal of the local system; this improved service is proposed to be carried out from the Alameda mole as well as from Oakland; the extended lines, equipped with the latest electric cars, will be in operation within a year; new lines will extend to San Leandro for the present, but will undoubtedly be later extended to Hayward.

**San Francisco, Cal.**—Citizens have defeated proposition to issue \$2,000,000 bonds for the construction and operation of an electric railway on Geary st.; this is the third time proposition has been defeated in 6½ years.

**San Francisco, Cal.**—The Supervisors received and referred to the Public Utilities Committee the bid of Frank D. Stringham and his associates for a 25-year franchise for a street railway on Stockton, North Point, Polk, Bay, Laguna and Chestnut sts. and Montgomery ave. Only one bid was submitted and it simply covered the charter requirement as to payment to the city of percentages of the road's gross income, as follows: 3 per cent for the first five years, 4 per cent for the next ten, and 5 per cent for the remaining ten years.

**Upland, Cal.**—Work on the new electric line which is to run from Los Angeles through Claremont to this city will begin as contract is let.

**Washington, D. C.**—The Baltimore & Washington Transit Co. of Maryland has placed on record a mortgage on all of its property for the issuance of \$200,000 in bonds; bonds are to run for 30 years; in order to begin work at once on the construction of a single track from a connection with the Capital Traction lines on 14th st. extended to Takoma Park, \$50,000 worth of stock will be issued immediately.

**Pensacola, Fla.**—The Pensacola Electric Co. is considering the rebuilding of four miles of its city tracks.

**Aurora, Ill.**—The Chicago, Aurora & DeKalb Railroad has been incorporated to build an electric railway from this city to DeKalb; capital stock, \$950,000.—J. H. Bliss, Sugar Grove; F. W. Ravlin, Kaneville; E. L. Lyon, F. M. Killian and J. C. Murphy, Aurora, Incorporators.

**Bloomington, Ill.**—Council has granted the Illinois Traction System, Champaign, a 20-year franchise to operate its cars over the lines of the city.

**Charleston, Ill.**—The Oil Belt Traction Co. has been incorporated to build a rail-

way from this city to Bridgeport; capital stock, \$100,000.—G. E. Groves, D. W. Odell, D. J. Odell, Geo. P. Murrin and F. P. Willard, of Oblong, Ill., Incorporators.

**Freeport, Ill.**—The Illinois & Wisconsin Development Association has been organized to promote the construction of an electric line 68 miles in length from this city to Madison, Wis.—W. T. Rawleigh is interested.

**Pekin, Ill.**—Alderman Cole has stated that he had been reliably informed that there would be laid before the Council next month an application for a street car franchise, and he hoped the Council would give the promoters a liberal grant.

**Peoria, Ill.**—City has granted the Peoria Railway Terminal Co. a 40-year franchise to construct a street railway on Washington st.

**Petersburg, Ill.**—Council has granted the Springfield, Beardstown & Quincy Interurban Railway Co. a 50-year franchise.

**Bluffton, Ind.**—A 50-year franchise has been granted to the Bluffton, Geneva & Celina traction line by Council, and the exit from the city will be eastward over Washington st., one of the best residence parts of Bluffton.

**New Albany, Ind.**—The Louisville & Northern Railway and Lighting Co. will soon build a branch from Scottsburg to Madison, Ind., where it will connect with another railway to Vevay, Aurora, Lawrenceburg, Ind., and Cincinnati, O.

**Providence, Ky.**—The Kentucky Electric Railway Co. has been incorporated to build an electric and steam railroad from Providence, in Webster County, to Dawson Springs, in Hopkins County.—E. H. Romey, Providence, Ky.; Ben Sisk, Silent Run, Ky.; J. T. Edwards, S. Hicks, W. G. Romey, M. E. Edwards and M. S. Romey, all of this city, Incorporators.

**New Iberia, La.**—Council is considering petition for a franchise to use certain streets by the New Iberia, St. Martin & Northern Railroad Co.; the petition of Mr. Mentz for a franchise for a street electric railroad for New Iberia was also read.

**New Orleans, La.**—A bond issue of \$50,000,000 by the New Orleans Railway and Light Co. has been authorized by a vote of the stockholders; \$30,000,000 of the issue will be used to retire outstanding obligations, and \$20,000,000 at the rate of \$1,000,000 a year, will be expended in developing the property of the company.

**Springfield, Mass.**—The Springfield Street Railway Co. has been granted the right to lay tracks in Hampden Park.

**Springfield, Mass.**—A new trolley line, connecting Longmeadow with East Longmeadow, and making a triangular belt line with the Longmeadow and East Longmeadow lines, is being projected by the Springfield Turn Verein and the Selectmen and residents of the two suburban villages; Manager Henry C. Page of the Street Railway Co. has been in conference with the prime movers for the new trolley line and favors the proposition.

**Winchester, Mass.**—Town has voted to make a strong protest to the Railroad Commission against the passage through the western portion of the town of the proposed interurban electric railroad between Boston, Lowell and Lawrence.

**Hunters Hot Springs, Mont.**—James A. Murray, Butte, has decided to build an electric line to connect his hotel with the Northern Pacific railway at Springdale; distance two miles.

**Gardnerville, Nev.**—The Board of County Commissioners has granted to H. H. Springmeyer and A. Jensen a franchise to build a street railway from the terminus of the Carson Valley branch of the Virginia & Truckee Railroad to Gardnerville; distance one mile.

**Brook Haven, N. Y.**—Town Board has granted to the South Shore Traction Co. a franchise to build and operate an electric railroad from Ronkonkoma to Port Jefferson; road is to start from Sayville, in Islip town, and run through Ronkonkoma, St. James, Stony Brook and Seatucket to Port Jefferson.

**Patchogue, L. I., N. Y.**—The Brookhaven Town Board has granted to the South Shore Traction Co. a franchise to build and operate an electric railroad from Ronkonkoma to Port Jefferson; road is to start from Sayville, in Islip town, and run through Ronkonkoma, St. James, Stony Brook and Seatucket to Port Jefferson.

**Ronkonkoma, N. Y.**—The Town Board has granted a franchise to the South Shore Traction Company, Patchogue, to construct an electric railway from Ronkonkoma through Seatucket, Stony Brook, Lake Grove to Port Jefferson.

**Utica, N. Y.**—Council has granted the applications of the Utica & Mohawk Valley Railway Co. for franchises in Whitesboro st. from Saratoga st. west to the city line, and in Mohawk st. from Bleecker st. to Pleasant st.

**Concord, N. C.**—City has granted a street railway franchise to the Piedmont-Carolina

Railway Co., Salisbury, which proposes to extend to Concord.

**Dayton, O.**—The ordinance requiring all street railway companies to place illuminated signs above the front vestibule of the cars, with letters not less than 4 1/2 inches high, has been signed by Mayor Burkhardt; signs which will give the direction and terminal of the respective lines, must be placed on the cars by September 1.

**Norwood, O.**—Council has been petitioned by the Southwestern Ohio Traction Co. for a franchise to operate a street railway on various streets.

**Chickasha, Okla.**—Council has granted to Lawrence Martin a franchise to build a street railway; franchise runs for 25 years and provides that the railway must be in operation within one year from the time construction is begun.

**Yukon, Okla.**—Yukon has raised the \$10,000 pledged in the stock subscription to the El Reno Interurban Railway; Town Council granted a right-of-way for a line over the town's principal streets and all but one mile of right-of-way has been granted by the farmers on the stretch of the proposed route from Yukon east to Oklahoma City.

**Portland, Ore.**—The Spanton Co. is preparing to extend a trolley system to the old poor farm tract of 202 acres.

**Salem, Ore.**—The Independence, Siletz & Pacific Railway has been incorporated to build an electric railway from Simpson through Siletz Indian Reservation to the coast; capital stock, \$500,000.—O. M. Taylor, D. N. Sears and H. Hirschberg, incorporators.

**Wilkes-Barre, Pa.**—Permission has been granted the traction company to extend its Scott st. line to the city line; it is the intention of the company to carry the line from that point to Hudson, where a connection will be made with the Plains line.

**Nashville, Tenn.**—The Nashville Interurban Railway Co. has increased its capital stock from \$400,000 to \$600,000; company will build an electric railway from Franklin to Mt. Pleasant; distance 40 miles.

**Covington, Va.**—Plans are being made for building a railway which will connect with the Chesapeake & Ohio at Covington and run through to Wilson's Creek. In Bath county; new line will extend through the Bath Alum estate, which is owned by Dr. Henry S. Pole, of Hot Springs; it will also pass through valuable ore land.

**Richmond, Va.**—As soon as practicable after securing a new charter and a franchise for the work, the Virginia Passenger and Power Co., or Virginia Railway and Power Co., as it will be styled in the new charter, proposes to effect a complete physical reorganization of its city lines; another work of importance will be started in the fall; this is the extension of the Richmond & Chesapeake Bay Electric Railway to Washington; work has already been done as far as Ashland.

**Everett, Wash.**—The Everett & Cherry Valley trolley into the Snoqualmie country will be built this summer and will run as far as Tolt.—J. T. McChesney is interested.

**Kennewick, Wash.**—C. A. Lundy, S. C. Emmons and G. F. Richardson, Kennewick, have applied for a franchise to build an electric railway from this city through Horse Heaven to the Kennewick Highlands.

**Kennewick, Wash.**—Council is considering an application for a franchise from W. R. Amon, S. C. Emmons, G. F. Richardson and C. A. Lundy; they ask for the right to operate an electric railway on certain streets of the town and offer a bond of \$2,000 as security against damage to the city during the period of construction.

**Seattle, Wash.**—The Lake Washington Electric Railway Co., of Seattle, has been incorporated by J. R. McLaughlin, Frank F. Mead, Paul Murphy and E. S. Clark, with a capital stock of \$50,000.

**Tacoma, Wash.**—A large loan has been arranged in England by the Thunder Creek Transportation and Smelting Co., of Tacoma, for constructing an electric railway along Thunder Creek in Skagit county connecting the mines with the Great Northern Railway.

**Vancouver, Wash.**—The Vancouver Traction Co., A. Welch, Portland, General Manager, will build a line from this city to Orchards, a distance of 6 miles, if it is given a bonus of \$10,000 and free right-of-way.

**Walla Walla, Wash.**—Preliminary work is being done for the extension of the line of the Walla Walla Valley Traction Co. on Cherry st.

## BRIDGES

**Camden, Ark.**—C. Omner Free, Engineer, has selected site for bridge to be constructed over Ouachita River; estimated cost \$50,000.

**Lakeport, Cal.**—The County Supervisors have decided to rebuild bridge over Cache Creek.

**Hartford, Conn.**—The Park Commissioners are considering plans for the bridge over the Park River at Mulberry st. by Davis & Brooks, the architects.

**Gillespie, Ill.**—Bids will soon be received for construction of two concrete bridges.—G. W. Schmidt, City Clerk.

**Lacon, Ill.**—Council is considering construction of a steel bridge.

**Washington, Ind.**—The Board of Commissioners of Daviess County has not yet let contract for constructing four bridges.—Thomas Nugent, County Auditor.

**Ottumwa, Ia.**—The Burlington company intends constructing a new heavy traffic steel wagon and railway bridge over the Des Moines River to replace the present lighter structure that now unites Iowa and Missouri territory.

**Hutchinson, Kan.**—Residents on the north side of West A ave. have petitioned the Board of Commissioners to have the street opened up and a foot bridge built over Cow Creek.

**Larned, Kan.**—City is considering construction of a new concrete or steel bridge on Main st.; cost about \$5,000.

**Fitchburg, Mass.**—The proposed erection of a bridge over the Nashua River to connect that densely populated section of the city, of which Water st. is the main thoroughfare, with Summer st., is again receiving consideration.

**Detroit, Mich.**—Citizens have voted to issue \$1,000,000 of bonds for the construction of a new bridge to cross Detroit River, from main land to Belle Isle; City Engineer R. H. McCormick has advised Council to solicit competitive plans for same.

**Kansas City, Mo.**—The Board of Public Works approved plans and specifications for concrete bridge over Brush Creek at Prospect ave.; estimated cost, \$12,066; bids will soon be invited.

**Newark, N. J.**—Bids will be received July 8, 2 p. m., for extending Baker st. bridge over the Rahway River; building concrete culvert on Valley st., South Orange; extending stone arch bridge on Central ave., and laying 1,450 ft. of 24-in. stoneware pipe on Springfield ave., Irvington.—Jas. Owen, County Engineer.

**Buffalo, N. Y.**—Bids will soon be received by the Grade Crossing Commission for both a viaduct and subway to abolish the Amherst and Austin sts. crossing of the Erie, N. Y. C., G. T. and D. L. & W. railroads.—Augustus F. Scheu, President.

**Ithaca, N. Y.**—City is considering construction of concrete abutments for two bridges and retaining walls, about 250 cu. yds.—Donald F. McLeod, City Engineer.

**Akron, O.**—Council has ordered plans prepared to replace the Bovers st. viaduct; cost \$25,000.

**Canton, O.**—The Board of Public Service has asked for an appropriation of \$1,500 for constructing a concrete bridge over railroad switch at water works station.

**Elyria, O.**—The Lorain County Board of Commissioners is considering construction of two steel viaducts, each 1,000 ft. long, one at Lorain and one at Wellington.—E. Kemp, County Surveyor.

**Saint Clairsville, O.**—The County Commissioners are considering erection of wagon bridges over north branch of Captina Creek on the road from Somerton to Bethesda.

**Zanesville, O.**—Muskingum County Board of Commissioners are considering construction of a highway bridge.—L. E. Brelsford, County Auditor.

**Ardmore, Okla.**—Carter County citizens will vote August 17 on \$200,000 bonds for bridge construction.

**Sapulpa, Okla.**—Creek County has decided to issue \$200,000 bonds to construct 70 bridges.

**Roseburg, Ore.**—Council has decided to erect a \$5,000 bridge over Deer Creek.

**Wilkes-Barre, Pa.**—Viewers have recommended that Luzerne County erect a bridge over the Susquehanna River at Wapwallopen; cost not more than \$75,000.

**York, Pa.**—The County Commissioners are considering the advisability of having a reinforced concrete bridge erected across the Codorus Creek at College ave.; it is proposed to make a number of alterations to the present condemned structure and use it as a reinforcement for the more improved bridge.

**Anderson, S. C.**—Anderson County is considering construction of a bridge across Savannah River.

**Greenville, S. C.**—City is considering a \$300,000 bond issue for the proposed construction of a bridge and other improvements; cost of bridge, \$35,000.—W. D. Neaves, City Engineer.

**Knoxville, Tenn.**—The Knox County Road Commission has instructed the County Engineer to advertise with the Board of Public Works, jointly, to build a bridge over Willow st. to Little Cuba; city is to pay one-half of the expenses and the county the other.

**Aspermont, Tex.**—The Commissioners' Court has decided to build a bridge across

the Salt Fork of the Brazos River, ten miles north of Aspermont; no contract has been let; it also ordered an election to authorize issuance of \$30,000 road and bridge bonds, election to be held July 31.

**Dallas, Tex.**—Dallas County will vote August 3 on additional \$100,000 bonds for bridge and road improvements.

**Dallas, Tex.**—Mayor Hay has recommended the study of the problem of raising the bridges over the Trinity River in readiness for navigation.

**Hidalgo, Tex.**—Hidalgo County has voted \$100,000 bridge and road bonds.

**Meridian, Tex.**—Bosque County will soon vote on \$100,000 bonds for construction of bridges and roads.

**Byron, Wash.**—The County Commissioners will erect a bridge over the Yakima River.

**Kalama, Wash.**—Cowlitz county will construct a bridge over the Kalama River; bridge will be a modern steel structure with a 150-ft. span resting on concrete piers.

**Krupp, Wash.**—County Commissioners have granted the petition for a new bridge to be built over Crab Creek.

**McMechen, W. Va.**—The proposed improvements to be made by the B. & O. at the junction will greatly benefit this town; plans call for the erection of an arch over the creek near Hitchman's coal mine; a great portion of this low land will also be filled in.

**Wheeling, W. Va.**—Bids will soon be invited for the proposed Market st. bridge.

**Madison, Wis.**—Council will probably postpone the erection of four bridges in Tenney Park until next year.

**Peterborough, Ont., Can.**—The County Council will expend \$4,000 on bridge construction in the county.

**Vancouver, B. C., Can.**—Plans for a suspension bridge over the First Narrows have been submitted to the Park Commissioners by W. T. Farrell and R. W. Tyler.

## BIDS RECEIVED AND CONTRACTS AWARDED

**San Jose, Cal.**—The Board of Supervisors opened bids for building a bridge over the Guadalupe at the Monterey road as follows: W. L. Gillham & Sons, \$4,942; L. M. Scott, \$4,700; John W. Williams, \$4,500, and Globe Construction Co., \$4,498; the bids of Williams and the Globe Construction Co. were referred to the Committee of the Whole, other checks were returned.

**Bloomington, Ind.**—The Monon Railroad Co. has awarded contract to the Strobel Steel Construction Co., Monadnock Bldg., Chicago, for the construction of ten new bridges.

**Haverhill, Mass.**—The County Commissioners have rejected all the bids for the building of the southerly approach to the Haverhill County bridge. They have voted to again advertise for bids, which will be opened Monday, July 12. The Commissioners stated that their reason for rejecting all the bids was that the work must be completed before fall in order that the local people may not be imposed upon during the winter, and secondly that the lowest bids were entirely out of proportion with the others and they (the Commissioners) did not feel safe in accepting them. The bids rejected were: Manzella & Ross, of Woburn, \$26,650.30; Penni, Little & Bannan, of Boston, \$28,827.79; A. G. Tomasella, of Boston, \$32,883.35; Cashman Bros., of Newburyport, \$34,354.70; Cenedella & Co., of Milford, \$34,978.50; Fletcher-Leahy Co., of West Chelmsford, \$36,286.75; Coughlan-Shields Co., of Boston, \$37,127.55; Richmond F. Hudson, of Melrose, \$41,917.50.

**Haverhill, Mass.**—Bids were opened June 28 by the County Commissioners for the construction of the southerly approach to the new Haverhill bridge. The bids and bidders were the following: Manzella & Ross, of Woburn, \$26,650.30; Perini, Little & Bannan, of Boston, \$28,827.79; A. G. Tomasella, of Boston, \$32,883.35; Cashman Bros., of Newburyport, \$34,354.70; Cenedella & Co., of Milford, \$34,978.50; Fletcher, Leahy Co., of West Chelmsford, \$36,286.75; Coughlan-Shields Co., of Boston, \$37,127.55; Richmond F. Hudson, of Melrose, \$41,917.50. No award was made.

**Lynn, Mass.**—Pitman & Brown Co., of Salem, have been awarded a contract for 8,000 ft. of long leaf hard pine at \$35, the lumber to be used on the Essex bridge.

**Newburyport, Mass.**—Contract has been awarded by the County Commissioners, Salem, to Holbrook, Cabot & Rollins Corporation, Boston, for rebuilding the "chain" bridge, at \$55,600.

**Buffalo, N. Y.**—Contract for constructing a reinforced concrete highway bridge on Northland ave. has been awarded to Tiffany & Gail, 1010 Mutual Life Bldg., for \$4,250.—F. G. Ward, Commissioner of Public Works.

**Corning, N. Y.**—The Denison Park Executive Committee has awarded a contract to John Bradley, city, to construct the cement bridge in the eastern section of Den-



## MISCELLANEOUS

ison Park; the bridge will be one of the finest of its kind in this section of the State and will cost in the neighborhood of \$1,700. It will be faced with concrete, marble effect, and two panels will bear the date of construction. The work will begin next week.

**Syracuse, N. Y.**—The Board of Contract and Supply has awarded C. J. Sullivan the contract for the construction of a reinforced concrete bridge over Onondaga Creek at Tallman st.; Mr. Sullivan's figure was \$8,015.50; he will start the work at once and have the bridge ready to open for traffic in two months.

**Mansfield, O.**—E. S. Gettings has been awarded contract for moving the Wayne st. bridge across the Rocky fork to the crossing where the extension of Newman st. is to cross that creek.

**Mansfield, O.**—The Board of Richland County Commissioners received bids for the construction of the Channing bridge and a large number of culverts in Plymouth Township. The bunch of culverts was divided into three groups of half a dozen or more each. The bids for the three groups of culverts and the Channing bridge were as follows:

Culverts, Set No. 1: Heib & Meyer, Shelby pipe, \$486.56; Galion pipe, \$466.29; Crestline pipe, \$482.53; Ashland pipe, \$477.18. C. L. Hill, Shelby or Galion pipe, \$640.70. M. F. Reynolds, Shelby pipe, \$446.53; Galion pipe, \$435.60. F. F. Schnitzer, Shelby pipe, \$516.84; Crestline pipe, \$496.79; Galion pipe, \$515.50.

Culverts, Set No. 2: Heib & Meyer, Shelby pipe, \$480.42; Galion pipe, \$462.62; Crestline pipe, \$471.52; Ashland pipe, \$477.57. C. L. Hill, Shelby or Galion pipe, \$584.30. M. F. Reynolds, Shelby pipe, \$399.90; Galion pipe, \$390.80. F. F. Schnitzer, Shelby pipe, \$529.45; Crestline pipe, \$490.30; Galion pipe, \$502.45.

Culverts, Set No. 3: Heib & Meyer, Shelby pipe, \$311.22; Galion pipe, \$298.46; Crestline pipe, \$302.52; Ashland pipe, \$299.04. C. L. Hill, Galion or Shelby pipe, \$340. M. F. Reynolds, Shelby pipe, \$291; Galion pipe, \$281.43.

Channing bridge, Plymouth Township: M. F. Reynolds, \$285; F. F. Schnitzer, \$399.

**Portland, Ore.**—Contracts for the erection of the new Madison st. bridge were awarded by the City Executive Board, June 23, the total cost being \$423,313. The contract for the substructure was given to Robert Wakefield for \$81,465, and the superstructure to the United Engineering and Construction Co. for \$321,690. Added to this is the cost of engineering, amounting to \$20,157. Robert Wakefield attempted to withdraw his bid for the substructure, alleging that he had made a mistake of \$11,000 in his calculations in his office, but the Board would not permit it. On motion of Seneca Smith the award was made to Wakefield for the amount of his bid, with the understanding that if he refused to sign the contract his certified check held by the Board for \$11,000 would be forfeited. The next lowest bid was a combination bid, consisting of the proposition of Wakefield for the substructure at the figures already mentioned and the proposal of Bane & Hewitt, of Minneapolis, Minn., for furnishing material for the superstructure and placing it, which with the engineering fee would make the bridge cost a total of \$439,889. The third bid was the one submitted by the Pacific Bridge Co., which with the engineering fee would bring the total to \$458,796.

**Knoxville, Tenn.**—The Tennessee river bridge will not be painted by A. C. Hatcher & Son, as the firm has notified Judge A. D. Collier that in preparing the bid an oversight was made and it cannot paint the bridge for \$3,300 and furnish the material as he had figured. The next lowest bid is by Greenwood & Co. for \$6,500, and the Bridge Committee, composed of Judge Collier and Squires I. C. King and Homer Gilmore will meet at once and take some action in regard to the matter. Mr. Hatcher states that if the committee will permit him to add the \$1,225 to \$3,300 that he will take the job, which will make his total \$4,525, or \$1,975 less than the Greenwood bid.

**Cameron, Tex.**—The Commissioners' Court has awarded contract, at \$5,980, to C. Q. Horton, of Austin, for the erection of a steel bridge across Little River.

**Berkeley Springs, W. Va.**—The County Court has awarded the contract for constructing a steel-truss bridge over Cacapon River, near Wisnerfort, to the Owego Bridge Co., of Owego, N. Y., for \$8,580.

**Toronto, Ont., Can.**—The Provincial Public Works Department has awarded contracts for constructing the following bridges: Over Vermilion River at Whitefish, to Dixon Bridge Co., for about \$15,000; also for steel superstructure of bridge over Spanish River at Nairn, and to the Gren. Sinclair & Campbell Co., of Toronto, for cement substructure of said bridge; total cost \$12,000.

**Pratt City, Ala.**—Citizens will vote on \$25,000 bonds for erection of a City Hall.

**Chico, Cal.**—The City Trustees are discussing the question of installing a garbage incinerator; several propositions were made but further particulars were desired before anything definite was done.

**Oakland, Cal.**—As the result of a conference between Councilman Oliver Ellsworth, Chairman of the Finance Committee of the Council, and George Gross, City Auditor, it has been ascertained that for the ensuing year the revenue of the city will be approximately \$1,700,000; this estimate is made on the basis that at least 25 per cent will go into improvements and that at the expiration of four years the sum of \$1,700,000 will have gone into permanent improvements and will be a perpetual investment for the city.

**Oakland, Cal.**—Bids have been called for by the Board of Public Works for the construction of a stone parapet on the floodgates of the 12th st. dam; work is estimated by the City Engineer at \$6,500 and is to be done in connection with the widening of the gate an additional 20 ft.

**Pasadena, Cal.**—Chief of Police H. H. Favour is urging the purchase of a combination motor patrol wagon.

**San Francisco, Cal.**—Citizens have defeated propositions to incur the following debts: \$8,480,000 for a civic center; \$160,000 for a detention home; \$250,000 for a park on Telegraph Hill; \$400,000 for a park in the Potrero district; \$500,000 for an aquatic park at the foot of Van Ness st.; \$25,000 for a park in Bay View district; \$90,000 for Glen Park and \$500,000 for the establishment of public playgrounds.

**Willows, Cal.**—The Board of Supervisors has issued a call for bids for the construction of a new dolphin above the Butte City drawbridge; it will be of solid concrete and will replace the one destroyed by the high water of last winter.

**Washington, D. C.**—The three markets owned by the District Government—the Eastern, Western and Georgetown—are to be put in first-class order, and everything that can be done to obtain similar improvements in the private markets will be done.

**Rock Island, Ill.**—Plans are being discussed by the Board of Park Commissioners for the laying out of the Seventh Ward Park.

**Streator, Ill.**—The Public Buildings and Grounds Committee has recommended that an architect be secured to draw up plans and specifications for the proposed changes in the City Hall.

**Des Moines, Ia.**—Architects Wetherell & Gage have prepared plans for a \$20,000 market house for the city.

**Chicopee, Mass.**—The Board of Health has investigated the Springfield Rendering Co.'s plant and finds that machinery is being installed which will do away with all odor; another pump will be in place soon, and then it is expected that everything will be satisfactory.

**Chicopee, Mass.**—The Board of Health will soon take up the matter of erecting a jail.

**Lawrence, Mass.**—The Dixon Crematory Co., of Toledo, O., will submit a plan and the proposed cost of an incinerator for this city.

**Methuen, Mass.**—Town has purchased a site on Pelham st. for a playstead.

**Waltham, Mass.**—The Board of Aldermen has appointed a committee to consider the advisability of erecting a new City Hall.

**Duluth, Minn.**—Plans for the purchase of about three acres of ground in the vicinity of 3d st. and 30th ave. west, to be converted into a children's playground park, is being considered by the Duluth Playground Association.

**Waconia, Minn.**—Council will receive new bids for the erection of a village hall.—Chas. S. Sedgwick, Minneapolis, Architect.

**Cassville, Mo.**—Citizens have defeated proposition to issue \$50,000 bonds for building a jail and Court House.

**Lees Summit, Mo.**—City is considering erection of a \$5,000 City Hall.

**Platte City, Mo.**—E. J. Eckel, St. Joseph, has prepared plans for a \$12,000 jail building.—A. M. Hord, County Clerk.

**Omaha, Neb.**—The Board of Park Commissioners will ask the City Council to order the appraisal of a half block of ground fronting on 35th st. between Mason and Leavenworth sts. and a piece of ground containing the area of about two blocks lying between 32d and Dewey aves. and Harney st. and South Central boulevard; the Board desires this land for playgrounds.

**Asbury Park, N. J.**—This city will soon have a place where the children will be able to romp and enjoy themselves to their hearts' content, for Mayor T. Frank Appleby has been requested by the City Council to appoint three Playground Commissioners, who will select, after appointment, a suitable place to erect playgrounds.

**Atlantic City, N. J.**—City has appropriated in bonds \$500,000 for the beach front parks; \$100,000 for taking the bend out of Albany ave., where the Meadow Boulevard enters the city; \$18,000 for alterations to the City Hall, and several minor issues.

**Atlantic City, N. J.**—Intent on securing control of the entire beach front outside the boardwalk for a public park, Council has voted to spend \$250,000 in buying rights of property owners in the strand.

**Camden, N. J.**—Council is considering an ordinance providing a \$25,000 bond issue for the improvement of parks.

**Kearny, N. J.**—Town has sold \$90,000 Town Hall bonds to J. S. Everitt & Co., of New York.

**Ocean City, N. J.**—The Board of Health has sent a letter to Council requesting it to provide a house of isolation; Board also decided to plug up the waste water pipes of all houses along the boardwalk where the owners are not showing a disposition to connect with the city sewers.

**Buffalo, N. Y.**—On July 16 Comptroller Zimmermann will sell at public auction \$1,240,000 worth of Buffalo city bonds; bonds include an issue of \$500,000 worth of water bonds; \$200,000 of water refunding bonds; \$300,000 of school bonds; \$150,000 of municipal building bonds, and \$50,000 of playgrounds bonds, and \$40,000 of bonds for burying the police and fire department wires.

**Buffalo, N. Y.**—The report of the Public Building Committee, favoring the purchase of the Nardin property at Franklin and Church sts. for city purposes and converting the municipal building solely to the use of the consolidated minor courts, has been adopted by the Aldermen.

**Long Island City, L. I., N. Y.**—Borough President Lawrence Gresser has sent a communication to Mayor McClellan requesting that an appropriation of \$300,000 corporate stock be made as an emergency measure to permit the erection of garbage crematories in Queens Borough.

**Utica, N. Y.**—Council is considering a resolution that the City Engineer prepare plans and specifications for the disposal of night soil and garbage of all kinds, animal and vegetable matter, including dead animals, house, store, market and hotel offal and all kinds of waste not entirely mineral in character, collected and received from any part of the city, and file such plans and specifications with the Board of Contract and Supply which is directed to let a contract for such disposal as provided by the second class cities law, for such period as it deems advisable not exceeding ten years; Alderman Morris is urging the erection of a municipal garbage plant.

**Columbus, O.**—The Columbus Humane Society is preparing to install six new watering troughs in various sections of the city; new troughs are to be of iron and are to be placed on concrete foundations; they will cost in the neighborhood of \$800.

**Elmwood Place, O.**—Town has awarded \$10,000 Town Hall improvement bonds to Weil, Roth & Co., at \$1,129.30 premium.

**Hamilton, O.**—The initial step toward securing the \$400,000 bond issue for the purposes of parks and boulevards for Hamilton was taken by Council, the Park Board and Citizens' Committee on Levee. It was decided to combine the reports of Engineer John Hill, of Cincinnati, and Landscape Artist Kessler, of St. Louis, and submit them to a committee of ten, who are to report a feasible and satisfactory proposition.

**Hugo, Okla.**—Citizens have voted \$125,000 bonds for a jail and Court House.

**Muskogee, Okla.**—City is considering establishment of a park on Fern Mountain.

**Philadelphia, Pa.**—Council as a Committee of the Whole has passed an ordinance authorizing a \$100,000 bond issue for the construction of public docks, wharves, piers and bulkheads.

**Philadelphia, Pa.**—Within a short time the old Municipal Hospital grounds at 22d st. and Lehigh ave. will be converted into a public park; property has passed from the control of the Department of Health and Charities to the Department of Public Safety, under the direction of Chief Eisenhower, of the Bureau of City Property.

**Pittsburg, Pa.**—At a conference between Mayor Magee, the County Commissioners and County Comptroller plans were made to spend \$12,000,000 on public improvements; a bond issue of \$6,000,000 will be submitted to the people by the county and city this fall; improvement scheme provides for tunneling through hills, freeing bridges, providing filtered water and leveling streets.

**Providence, R. I.**—Miss Arnold, of the Public Playground Committee, has interested herself in the project of erecting a building at Tockwotton Park that will be suitable for a bath and lavatory.

**Memphis, Tenn.**—Having abandoned, at least for the present, and probably for all time, the idea of acquiring the Southern Railway yards for park purposes, the Park Commissioners have taken steps for the

development of the local park system along new lines; this will include the completion of the improvements already planned in the other parks, and more extensive improvements at and near Riverside Park than have heretofore been contemplated; the new plans include the acquisition of Jackson Mound Park and the building of a park boulevard 200 ft. wide northward from Riverside Park, as far toward the business center as it proves practicable to secure the necessary right-of-way; plan also includes the extension of the park driveway, which has already been partially laid out in Riverside Park along the river bluffs, northward probably as far as the railroad bridge over the river.

**Dallas, Tex.**—Mayor Hay has recommended the purchase of an automobile not to exceed \$650 for the City Chemist and apparatus not to exceed \$350 in cost for that department.

**Dallas, Tex.**—Beginning with the public baths to be installed shortly at the Cotton Mills Public Park and Playgrounds, the city is to install a system of public baths and public toilets.

**Denison, Tex.**—Taxpayers have voted in favor of levying a tax of 25c. on the \$100 to build a hospital. The building is to cost \$25,000.

**Chehalis, Wash.**—Council has sold the \$150,000 municipal bonds recently voted with which to build a City Hall to the State of Washington at par at 5 per cent; work is already under way on the plans for the structure and improvement of the grounds adjacent.

**Pasco, Wash.**—County is considering erection of a new jail.

**Seattle, Wash.**—Council has been petitioned to appropriate money to establish a solarium or fresh air pavilion in the city for wage-earners suffering from tuberculosis.

**Seattle, Wash.**—The Finance Committee of Council has decided to reject all offers for a site for city stables, shops and store-rooms and to appropriate \$75,000 for the construction of a building on property already owned by the city at 8th ave. S. and McClellan st.

**Madison, Wis.**—Council is considering the erection of two drinking fountains and two sanitariums in Tenney Park.

### BIDS RECEIVED AND CONTRACTS AWARDED

**Missoula, Mont.**—The report of the City Attorney in regard to the appointment of a city contractor came up for final consideration; some time ago bids were advertised for this position, which gives to the successful bidder all of the city's cement work during the year, and the lowest bid of the three offered proved to be one of the Miracle-Tripp Co., of Helena. The other two bids were, moreover, behind time and were unaccompanied by checks. The matter was referred to the Contracts and Estimates Committee, which reported in favor of Beacom & Johnson. The report was then turned over to the City Attorney, who reported that it was illegal to accept any except the Miracle-Tripp bid. A protest was also read from the Helena company against granting the contract to Beacom & Johnson; the contract was awarded to the Miracle-Tripp Company by Council.

**New Brighton, S. I., N. Y.**—Bids were re-

ceived by George Cromwell, President Borough of Richmond, June 22, for constructing retaining walls and appurtenances on Jay st. and South st., being part of the street improvements authorized for the approaches of the St. George Ferry, together with all work incidental thereto. Lowest bidder was the Ferro-Concrete Contracting Co., 1 Madison ave., New York, at \$72,625.

**New York, N. Y.**—Bids were received June 25 by the Department of Docks and Ferries, for Contract No. 1181, for furnishing all the labor and materials required for preparing for and building a new pier at the foot of Jamaica ave., Astoria, Borough of Queens. Lowest bidder was the Phoenix Construction Co., 41 Park Row, at \$11,897.

Bids were received by the Department of Docks and Ferries June 22 for Contract No. 1177, for furnishing all the labor and materials required for preparing for and painting the hulls of the municipal ferryboats; lowest bidders were Jas. Showan & Son, foot Houston st., East River, at \$17,593.

Bids were received June 25 by the Department of Parks for furnishing and erecting iron railings around the grass plots in Broadway between 72d and 82d sts., Borough of Manhattan; lowest bidders were Clarke & Stone, 221 Greenpoint ave., Brooklyn, at \$14,900.

**Columbus, O.**—The State Board of Public Works has awarded the contract for the building of a retaining wall in Lock st., Lockland, to John Ryan of White House, Lucas County, for \$1,140.25.

**Hamilton, O.**—The following contracts have been awarded by the County Commissioners: Werbel & White, to make a channel cut and construct two log, brush and stone bridges on Elk Creek, at Miltonville, for \$359; also to J. T. Guillaume, to place a bulkhead of pipe culvert at the M. Zoller farm, Fairfield Township, two ft. lower than the original plan, for \$19.44.

**Carbondale, Pa.**—George W. Berry was given a contract to supply fifty benches for use in the park, at a price of \$3.31 each.

Bids for the painting of the white bridge and the erection of a wall at the Anthony Banks property, were rejected because they were advertised for by the City Engineer instead of City Clerk.

**Ebensburg, Pa.**—The County Commissioners held a special conference with Architect James K. Boyd, of Johnstown, representing the firm of Boyd & Hall, architects, and opened bids for the erection of the addition to the Cambria County jail. The successful bidders were Kenyon & Hart, of Clearfield, the contract price being \$24,524 for a brick structure 62x102 ft. and \$25,434 for a stone structure. The other bidders were as follows: P. W. Simms, of Pittsburg, \$27,039; Orner & Webster, of DuBois, \$28,299; Thiele Construction Co., of Johnstown, \$25,948; John L. Elder, of Ebensburg, \$25,980 with stone and \$25,450 with brick; C. D. Hughes, of Altoona, \$26,446 with brick and \$27,796 with stone, and J. G. Hartley, of Johnstown, \$25,605 with stone and \$25,398 with brick; immediately following the opening of the bids the Commissioners decided to build the addition with brick and awarded the contract to the Clearfield County concern; work will begin soon.

**Galveston, Tex.**—At noon, June 28, the final bid on the Galveston causeway was filed with County Auditor J. W. Murch and another important step in the great propo-

sition which will connect the island of Galveston with the mainland has been taken. It was found that out of the twelve bids submitted only four were for the causeway in its entirety, and that of these four only two bidders were within the limit of \$1,400,000. Of these two the firm of Owens & Heffron were the lowest, they submitting three bids, the three being for different grades of material for use in the structure, relating principally to the stone work.

The bids of Owens & Heffron were given as follows: For causeway in its entirety, using granite, \$1,232,000; for causeway in its entirety, using sandstone, \$1,190,000; for causeway in its entirety, other material named in detailed specifications, \$1,148,000.

The next lowest bidder was the firm of A. M. Blodgett Construction Co., of Kansas City, Mo. This firm bid for the causeway in its entirety the sum of \$1,330,000.

The next lowest was that of the Missouri Valley Bridge and Iron Co., of Leavenworth, Kan., which bid for the causeway in its entirety \$1,427,500. The James Stewart Co., of New York, bid \$1,610,000.

The bids in detail in the order that they were submitted are as follows:

Stroble Steel Construction Co., of Chicago: For lift bridge only, design A, submitted with bid, \$112,000; design B, \$103,000.

Missouri Valley Bridge and Iron Co., of Leavenworth, Kan.: For causeway in entirety, \$1,427,500; for arch bridge, \$730,000; for lift bridge, \$120,600; for roadway, \$580,000.

James Stewart Co., New York: Causeway in entirety, \$1,610,000; for arch bridge, \$782,000; for lift bridge, \$112,500; for the roadway, \$745,000.

Charles Clarke & Co., Galveston: For arch bridge only, \$742,496.53.

A. M. Blodgett Construction Co., Kansas City: For causeway in its entirety, \$1,330,000; for the arch bridge, \$655,000.

For the lift bridge the following bids as per details of material furnished with bid, \$110,000, \$112,000, \$105,000, \$105,000, 100,000, \$98,000. For roadway using 75 per cent sand, \$577,000.

Perin Bridge Co., of Beaver Falls, Pa.: For arch bridge, \$753,000; for lift bridge, bids as per details and specifications accompanying bid, the following amounts: \$63,400, \$73,400, \$67,000, \$77,000, \$86,000, \$91,500, \$88,000.

Scherzer Rolling Lift Bridge Co., of Chicago: For the lift bridge, \$71,000 and \$81,000.

Chicago Bridge and Iron Works, of Chicago, Ill.: For lift bridges, \$132,000 and \$128,000.

Bates & Rogers Construction Co., of Chicago, Ill.: For arch bridge, \$930,000; for roadway, using for filling 85 per cent sand, \$676,000.

H. E. Talbot Co., of Dayton, O.: For causeway, except lift bridge, \$1,436,435; for arch bridge, \$794,235; for roadway, 70 per cent sand, \$717,200.

Owens & Heffron, Galveston: For causeway in its entirety, \$1,232,000, 1,190,000, \$1,148,000; for arch bridge, \$623,000, \$582,000, \$560,000; for lift bridge, \$84,000, \$94,000, \$84,000; for roadway, using sand for filling only, \$591,000, \$572,000, \$584,000, \$565,000, \$564,000, \$545,000.

Fred A. Jones & Co., Houston: For causeway without lift bridge, \$1,360,000; for arch bridge, \$898,000; for roadway, using sand filling \$582,000. For roadway, using 90 per cent sand, \$622,000.

### TOO LATE FOR CLASSIFICATION

#### STREET IMPROVEMENTS

**Trenton, N. J.**—County Engineer Eppele has conferred with representatives of the manufacturers of fibertine with a view of determining the provisions of the specifications under which bids for pavements, of the company's compound, might be advertised for; action has been taken by the County Engineer in order to gain information for the Board of Freeholders which will soon determine the kind of material to be used on the roads in this county that are to be improved with State automobile funds, and which will form a part of the fine highway to the shore that has been decided upon. In a few days Engineer Eppele will have a conference with the Amiesite company regarding its specifications; there is likely to be a sharp fight between the Fibertine and Amiesite companies over the shore road contract, which will represent an outlay of about \$100,000. Because the sample stretch of fibertine laid on Greenwood ave. is a fine example of modern road building a majority of the Board

of Freeholders favor its use on other highways if price and guarantee can be arranged to their satisfaction.

**Utica, N. Y.**—Bids will be received by the Park Board, July 15, 9 A.M., for the construction of Utica Parkway from Genesee st. to Elm st., including the laying of approximately 16,000 yds. of bituminous macadam and various other items.—W. H. Morton, Secretary.

**Cleveland, O.**—Proposals will be received by the Board of Commissioners of Cuyahoga County, July 28, noon, for the grading, draining and improving of Independence rd. from the intersection of Fleet and Petrie sts. to Harvard rd. in Newburg Heights Village.—Wm. F. Black, Clerk.

**Cincinnati, O.**—Bids will be received by the Board of Public Service, July 13, noon, for furnishing the necessary labor and materials for the improvement of Dirr st. from Dreman ave. to Elm st., by grading, constructing combined cement curb and gutters, paving the roadway with brick and constructing the necessary drains and inlet.—John J. Wenner, Clerk.

**Harrisburg, Pa.**—Proposals will be received July 9, noon, for the paving and curbing of the following highways: Briggs st. from 16th to 17th sts., 7th st. from Mac-lay to Woodbine sts., 10-ft. alley 100 ft. north of Market st. from 15th st. westward to end of same, and Zarker st. from 14th to 15th sts.—W. W. Caldwell, Commissioner.

**Latrobe, Pa.**—Proposals will be received July 19, 7.30 p. m., for the grading, curbing and paving of Unity st. from Lloyd ave. to the northern side of North ave.; approximate estimate about 550 cu. yds. excavation, 550 lin. ft. concrete curb and water table, 1,150 sq. yds. paving.—E. M. Eaton, Secretary.

#### BIDS RECEIVED

**Pensacola, Fla.**—Mayor Reilly, Chairman Bushnell of the Board of Bond Trustees, and City Clerk Aymard have attached their signatures to the two paving contracts as recently approved by Council, and the documents were forwarded to the construction companies to whom the contracts were awarded. The Southern Paving Construc-



tion Co., of Chattanooga, is to pave 85,000 sq. yds. in the residential section with brick on a concrete foundation, while the United States Wood Preserving Co., of New York, has a contract calling for the construction of 87,000 sq. yds. of creosoted wood block on a similar foundation in the business district.

**Chicago, Ill.**—Bids for the asphalt street-repair contract, which are low compared with those received for the same work a year ago, were opened by the Department of Public Works June 30. The contract is the one which takes most of the receipts from the wheel tax and which was obtained last year by M. H. McGovern through a "freak" bid in which he offered to lay new surfaces and concrete foundation for 1c. a sq. yd. and new surface alone at \$1.75 a sq. yd.

Bids on resurfacing only were requested in the specifications and the offers for the work, for which M. H. McGovern received \$1.75 last year, were: Iroquois Paving Co., 72½¢; Foulkes-Forbes Co., 74¢; J. P. Lougherty, 89½¢; Barber Asphalt Co., 90¢; Citizens' Construction Co., 94¢; Federal Improvement Co., \$1.02; Parker-Washington Co., \$1.09; M. H. McGovern, \$1.49.

The McGovern contract expires June 30, and Michael J. Doherty, Superintendent of Streets, is making an inspection of the streets he has completed to see if they are acceptable.

**Baltimore, Md.**—Low bids on State roads for which contracts have not been awarded are as follows:

St. Mary's, 5½ miles, from Mechanicsville toward Morgaza, \$6,508, McCormick & Co., Philadelphia.

Calvert, 3 miles, from Owings Station toward Sunderland, \$12,687.40, Monmouth Contracting Co., Red Bank, N. J.

Anne Arundel, 5 miles, from Owings Station toward Lothian, \$14,619.65, Monmouth Contracting Co.

Baltimore County, 2 miles, from the eastern city limits to Herring run, \$29,488.60, Fisher & Carozza.

Caroline, 4.4-10 miles, 2.2-10 miles each way from Denton, \$17,270.15, Juniata Paving Co., Harrisburg, Pa.

Somerset, 3 miles, from Princess Anne to King's Creek, \$38,816.40, Harper Engineering Co., Washington.

Allegheny, 2 miles, from Eckhardt's mine through Frostburg to the Garrett County line, \$21,709.25, Rudolph & Means, Windber, Pa.

**Akron, O.**—The Board of Public Service has awarded the contract for the paving of Allyn st. from Fowers to South st. to E. McShaffrey & Son; the contract calls for Akron granite brick for paving, stone curb and tar filler; the contract price for the work as submitted in its bid is for \$12,130.

**Lima, O.**—Alleging that a paving contract, granted to J. O. Shoup, Dayton, was illegal, because his submitted bid was at a lower figure, W. E. McKugh, Springfield, has filed suit in the Lima, O., courts; litigation arises over a paving job amounting to \$25,000 in Lima.

**Norwalk, O.**—W. C. Pace, of Cleveland, who was awarded the contract for building the Foster ave. pavement, has signed the contract with the Board of Public Service.

**Steubenville, O.**—The Board of Service has opened bids and awarded contracts as follows: West Market st. paving to Nolan & White, of Toronto, for \$10,428.65; Adams st. paving, 3d to C. & P. R.R., to H. M. Eates, for \$3,881.50; the Engineer has been instructed to advertise for bids for street paving on La Belle View on Pittsburg st., from West Market to Ridge ave.

**Woodfield, O.**—Adams & Schwall have been awarded a contract for laying 4,000 sq. yds. brick pavement on Cross and Sycamore sts. on crushed stone foundation for \$1 25 per sq. yd.; straight curbing, 49¢; corners, 80¢.

Charles Burgbacher has been awarded a contract for laying 3,000 sq. yds. brick pavement on crushed stone foundation on Maple ave. for \$1.39 per sq. yd.; straight curbing, 48¢; corners, 87¢.

Other bids for paving were: L. T. Cisler, \$1.40; Wm. J. Berry, \$1.39.—Geo. P. Dorr, Village Clerk.

**Greensburg, Pa.**—New bids for the paving of Tremont and Highland aves. and Urania ave. and the first alley west of Pennsylvania ave., between Pittsburg and Otterman sts., and the alley between Westmoreland and Underwood aves. in the Seventh ward, were submitted to Council June 29. It is believed that the rejection of last bids a week previous will result in a saving to the borough.

The Hallam Construction Co., of Washington, Pa., and Rinehart Bros., of East Liverpool, O., are the lowest bidders, with the advantage slightly in favor of the first named concern. However, the bids submitted by these two concerns are so close that the full tabulation of the estimates must be made by the Borough Engineer

before the lowest bid is determined. The other bidders were Amsler & Co., of Franklin, McCready Bros. of Braddock, Thomas Sweeney & Co. of Pittsburg, and Freshwater Bros. & Co. of Chester, W. Va. Emery & Evans of Youngstown and F. J. Erbeck of Homestead, who bid a week ago, did not submit estimates.

**Salt Lake City, Utah.**—P. J. Moran has been awarded a contract for paving extension No. 55, including asphalt paving, at \$2.55 per sq. yd., and miscellaneous work amounting altogether to \$35,371.27; also paving extension No. 35, asphalt, amounting to \$36,107.53, and paving extension No. 48, asphalt, amounting to \$13,599.67.

Andrew D. Burt has been awarded a contract for laying crosswalks amounting to \$8,615.—L. C. Kelsey, City Engineer.

## SEWERAGE

**Oakland, Cal.**—Bids will be received, July 21, 10 a. m., for constructing an intercepting sewer in 11th ave. and East 13th st.; a storm sewer in San Pablo ave. from Stanford ave. to Temescal Creek, and extensions to culvert in the 12th st. dam.—W. B. Fawcett, Clerk Board of Public Works.

**Atlanta, Ga.**—The city has, through Mayor Maddox and City Engineer Clayton, secured options on three tracts of land to be used as sites for three septic tanks with which to dispose of the city sewage; Rudolph Hering, the New York sanitary expert, whose services were secured to map out a plan for Atlanta's sewerage system, has submitted a preliminary report and as soon as he reaches the city will make a report of the plan in detail.

**Marcus Hook, Pa.**—Borough proposes to erect a sewage disposal plant.

## BIDS RECEIVED

**Auburn, Neb.**—Fifteen bids were received June 23 on sanitary sewers and the work was awarded to Katz-Craig Construction Co., for \$17,153; on the same date 13 bids were received on water works, and the work was awarded to the Katz-Craig Construction Co. for \$22,701.36; the same company's total bid, including water works, sewers, furnishing cast-iron pipe, hydrants and valves, standpipe, etc., was \$61,807.—Burns & McDonnell, Scarritt Bldg., Kansas City, Mo., Engineers.

**Westfield, N. J.**—Fifteen bids from all over the country have been received from contractors who want to build the sewer system north of Dudley ave. The sewer will cost between \$20,000 and \$30,000, and of the fifteen bidders three were very close. The bids have been referred by Council to the Road, Sewer and Water Committee for investigation.

## WATER SUPPLY

**Washington, D. C.**—Upon motion of Engineer Commissioner Judson, the Commissioners have issued the following orders: That the following water mains be laid and service sewers constructed—1,550 ft., more or less, of 8-in. water main in Grand road between Wisconsin ave. and Brandywine st. northwest; 650 ft., more or less, of 8-in. water main in a now unnamed street in square 651, between M and N, South Capitol and Half st. southwest; 1,100 ft., more or less, of 8-in. water main in the south side of Michigan ave. east of North Capitol st. northeast; 325 ft., more or less, of 8-in. water main in the south side of Butternut st. between Piney Branch road and 6th st. northeast; sewer in L st. northeast between 9th and 10th sts. abutting lots 36 to 46, inclusive, of square 931; that fire hydrant at the southwest corner of Florida ave. and 9th st. northeast be adjusted to grade, at an estimated cost of \$30; that the roadway of K st. southeast from 13th to 14th sts. be graded, at an estimated cost of \$300, and that a roadway entrance from 32d st. into South st., about 30 ft. wide, on an 8 per cent grade, be graded by the chain gang, at an estimated cost of \$500.

**Virginia, Ill.**—The question of a system of water works for Virginia has been revived by the visit of Engineer A. T. Maltby, of Chicago, who has looked over the ground, and also the plans of Engineer Brown, of Jacksonville, who proposed to pipe water from the Sangamon River for use here; Mr. Maltby has announced that if the people will vote a bond issue of \$43,000 he can install the necessary works and guarantee the water supply.

**Evansville, Ind.**—A 1,000-ft. water main has been ordered for John st. by the Board of Water Works.

**Osage City, Kan.**—Bids are to be received for a complete water works system July 27, 2 p. m.—Burns & McDonnell, Scarritt Building, Kansas City, Mo., Engineers.

**Manchester, N. H.**—The Committee of Three, consisting of Charles L. Ricketts,

John M. Williams and Charles E. Norton, which was appointed to investigate the feasibility of the district's establishing its own water plant will report in a short time; it is believed that the report will be favorable to the scheme.

**Temple, Tex.**—Citizens have voted \$100,000 bonds for municipal water works extensions and improvements.

## LIGHTING AND POWER

**Bridgeport, Conn.**—Mayor Lee has announced the appointment of the special committee authorized by the Common Council, to inquire into the cost of producing electricity for lighting purposes. It is composed of Attorney David S. Day, Chairman Frederick A. Strong, a member of the Board of Fire Commissioners; Col. Elmer H. Havens, a member of the Board of Education; Alderman Dudley B. Bullard and John H. Cassidy.

**Atlanta, Ga.**—The General Council will be called upon soon to consider a favorable report that has been made by the committee on electric and other railways on an application for a franchise by the Central of Georgia Power Co., which seeks to distribute electricity in the city for power, heat and lights.

**Greenville, Tex.**—City will receive bids, July 19, 2:30 p. m., for electric light machinery as follows: Two 300 kw., 2200 60-cycle alternatives, direct connected to four-valve compound engines, with switchboard and everything set, cost about \$20,000; one 75 kw. steam automatic exciter, \$2,000; one motor generator, 75 kw., \$9,000; three 250-h.p. water tube boilers, \$9,000; mechanical stokers for same, \$3,000; feed pump heaters and piping, \$3,000; ten flaming arcs, \$350; power line from station, \$1,350; 100 Tungsten series incandescent street lamps, \$500; one electrically driven pump, \$3,000; new transformers, \$500, and engineering and constructing cost, \$4,500; total estimate, \$49,610.—W. A. Frazer, City Clerk; J. W. Maxcy Co., Engineers.

**Greenville, Tex.**—Bids will be received, July 19, 2:30 p. m., for \$50,000 electric light and power plant bonds, and for \$2,000 improvement bonds.—F. M. Kemp, Attorney of the City of Greenville, Tex.

## ELECTRIC RAILWAYS

### CONTRACT AWARDED

**Newman, Ga.**—The directors of the Western & Georgia Railway have awarded the contract for the construction of the proposed road to Ira L. McCord & Co., of New York.

### BRIDGES

**Sterling, Ill.**—Henry Brown, Chairman of the Whiteside County Board of Supervisors, has appointed a committee of supervisors to act with the road commissioners of Hume Township in conjunction with the second attempt to erect seven new bridges in that township; committee appointed is as follows: Supervisors Adam Beien of Sterling, Theodore Frank of Montmorency, and Ellwood Beeman of Prophetstown.

### CONTRACTS AWARDED

**Mason City, Ia.**—The Advance Construction Co., of Waterton, Ia., has received contract for bridge; price, \$15,950.—A. S. Clark, County Auditor.

**Sewickley, Pa.**—Adam Laidlaw & Co. have been awarded a contract for building Ohio River bridge No. 1 for \$98,907.25.—J. G. Chalfont, County Engineer.

## MISCELLANEOUS

**Lakeland, Fla.**—A committee of citizens is discussing the proposed bond issue and will arrive at a decision in regard to the amount to be expended for the various contemplated improvements.

**Whitestone, N. Y.**—The Whitestone Improvement Association has again discussed the new dock proposition. Secretary Gray read a letter received in answer to one sent in May requesting that a delegation be sent to the next meeting held by the Commissioner of Docks; a public dock is greatly in demand and it is hoped that it will be established.

**Reading, Pa.**—Henry J. Stocker, to whom was awarded the contract for cleaning the paved streets of the city for a period of five years, and Harry J. Adams, to whom Mr. Stocker sublet the contract, and who has been doing the work for some months, has given up the contract and will tender the city the use of their equipment to do the work until the city will be able to furnish some of its own.

**Greenville, Tex.**—Bids will be received, July 19, 2:30 p. m., for \$2,000 improvement and \$50,000 electric light and power bonds.—F. M. Kemp, Attorney.